

# HEALTH STATISTICS

FROM THE U.S. NATIONAL HEALTH SURVEY

## Volume of X-ray Visits

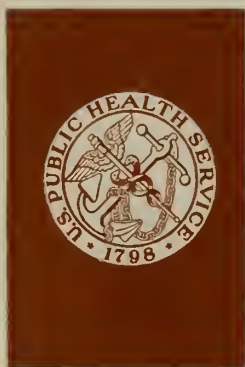
United States

July 1960 - June 1961



U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
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## Volume of X-ray Visits

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Statistics on volume of medical and dental X-ray visits, by area of body x-rayed, place of X-ray, type of X-ray, age, sex, race, residence, geographic region, family income, and education. Based on data collected in household interviews during the period July 1960-June 1961.

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

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The U. S. National Health Survey is a continuing program under which the Public Health Service makes studies to determine the extent of illness and disability in the population of the United States and to gather related information. It is authorized by Public Law 652, 84th Congress.

### CO-OPERATION OF THE BUREAU OF THE CENSUS

Under the legislation establishing the National Health Survey, the Public Health Service is authorized to use, insofar as possible, the services or facilities of other Federal, State, or private agencies.

In accordance with specifications established by the National Health Survey, the Bureau of the Census, under a contractual arrangement, participates in most aspects of survey planning, selects the sample, collects the data, and carries out certain parts of the statistical processing.

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#### SYMBOLS AND NOTES

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Magnitude less than one-half of the unit  
used ----- 0 or 0.0

Magnitude of the sampling error precludes  
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NOTE: Due to rounding detailed figures  
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# VOLUME OF X-RAY VISITS

## SELECTED FINDINGS

During the 12-month period starting in July 1960 the U. S. National Health Survey, in its Health Interview Survey program, collected information about medical and dental X-ray visits. Since about half of the total radiation dosage to the whole body of an average person is accounted for by medical and dental X-ray exposures, it is of interest to study how these X-rays are distributed in the several age and sex groups in the population of the United States.

During a 12-month period members of the civilian, noninstitutional population reported that they had made an estimated 85 million visits to medical facilities for medical X-rays, and about 49 million visits for dental X-rays. During a medical X-ray visit one or more areas of the body were x-rayed; a total of about 93 million areas of the body were x-rayed during the 85 million visits. An X-ray of an area of the body may have included one or more film exposures, one or more fluoroscopic views, or one or more X-ray treatments. No attempt was made to collect information about the number of film exposures, fluoroscopic views, or ports used for treatment; in addition no data were collected about treatment with radioactive materials, including radium and radioisotopes.

The chest was the area of the body x-rayed most frequently, with an estimated 51 million visits. Next in terms of frequency were X-rays of the extremities, about 14 million visits. Most of the 85 million medical X-ray visits made by individuals were for diagnostic purposes; there were 82 million diagnostic X-ray visits compared with about 3 million visits reported for treatment; about 2 million of the visits were made for both diagnosis and treatment.

Males had a higher rate of medical X-ray visits than did females, but the reverse was true for dental X-ray use. Nonwhite persons between the ages of 15-44 had more medical X-ray visits per 100 persons than did white persons. The greater rate of X-rays of the chest by nonwhite persons accounted for this racial difference. On the other hand, rates of visits for dental X-rays were higher for white persons than for nonwhite persons.

As family income and educational attainment of the head of the family rose, the rate of dental X-ray visits also increased. For medical X-ray visits, an increase in the X-ray visit rate was correlated with rise in educational level of the head of the family, but the rate remained approximately the same for each income group.

Residents of the Western States had the highest rate of medical and dental X-ray visits. Persons residing in urbanized areas of the country, using areas defined in the 1950 Census, made greater use of medical and dental X-ray facilities in proportion to population than did residents in the rural areas.

A higher percentage (50.0) of medical X-rays of various areas of the body were performed in the hospital than in other places. The percentage in hospitals includes both outpatients and inpatients. About two out of each five chest X-rays were made in a place other than a hospital or doctor's office, including such places as health departments, mobile X-ray units, industrial places, or schools.

## SOURCE AND LIMITATIONS OF THE DATA

The information presented in this report was obtained from a continuing household interview survey of a probability sample representative of the civilian, noninstitutional population residing in the United States. During the 12-month period,

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This report was prepared by Charles S. Wilder of the U. S. National Health Survey staff.

July 1960-June 1961, interviews were obtained in approximately 38,000 households containing about 125,000 persons living at the time of the interview. Data about health, social, and demographic characteristics of each household member were recorded on the questionnaire reproduced in Appendix III. Information on the volume of X-ray visits and areas of the body x-rayed was obtained in response to questions 21-25.

A brief description of the statistical design of the survey, the methods of estimation, and general qualifications of the data obtained from surveys is presented in Appendix I. Since estimates shown in this report are based on a sample of the population rather than on the entire population, they are subject to sampling error. Therefore, particular attention should be directed toward the section, "Reliability of Estimates," which contains charts indicating relative sampling errors and instructions for their use. The sampling errors for most of the estimates are of relatively low magnitude. However, when a number, or the numerator or denominator of a rate or percentage, is small, the sampling error may be high. In these instances, the estimates must be interpreted with caution.

Definitions of certain terms, and particularly those related to X-ray visits, are explained in Appendix II. Some of the terms have specialized meanings for the purpose of the survey. Familiarity with these definitions will assist the reader in interpreting the data. For example, an X-ray visit was included if X-rays had been used for film exposure, fluoroscopy, or treatment. If radioactive materials, such as radium or radioactive isotopes, were used for treatment or diagnosis, an X-ray visit was not counted.

A general limitation to all data obtained by household interview is that the data are no better than the respondent's knowledge of and willingness to discuss his affairs. To determine the format which would elicit the most accurate and complete information, pretests of the X-ray questions were conducted, and the answers were compared with X-ray records of sample populations (see Appendix IV). These pretests indicated that memory recall of X-ray visits was satisfactory up to a period of three months. Beyond that period, however, a larger proportion of X-ray visits were not reported in the interview. Therefore, the X-ray questions were phrased in terms of a three-month reference period. As indicated in Appendix IV, visits for treatment were less well reported than visits for diagnosis.

Questions were formulated to elicit information in terms of the X-ray visit rather than the

X-ray exposure since it was assumed that respondents would be likely to know how many times a visit was made during which an area of the body was x-rayed or fluoroscoped, but that they would not know the number of exposures (films or fluoroscopic views). For similar reasons the X-ray visits were classified in terms of six general areas of the body rather than such specific parts of the body as individual bones or internal organs. The use of radioisotopes as a source of radiation for medical purposes was not included in these data because relatively few respondents would know sufficient details about this application.

## MEDICAL X-RAY VISITS

### Volume of Visits

From data collected during July 1960-June 1961 it is estimated that about 85 million visits were made to medical facilities for medical X-rays during this period (table 1). One visit was counted each time a person went to a doctor's office, hospital, or other facility to have one or more areas of the body x-rayed. Since the same person may have had more than one such visit during the period, this does not mean that 85 million persons had medical X-rays during a year's time.

Respondents in the household health interview were asked how many times each household member visited an X-ray facility for a medical or dental X-ray during the three months prior to the week of interview. No data about X-ray visits were collected for active military personnel, institutionalized members of the population, or deceased members of the household.

During an average three-month period about three fourths of all persons who had X-ray experience made a single visit for a medical X-ray (table A). The remainder made two or more visits. As age increased the frequency of multiple visits rose; about one third of the x-rayed persons aged 65 years and over made two or more visits to an X-ray facility during a three-month period. Multiple visits were made chiefly for treatment X-rays, while the majority of single visits were for diagnostic purposes.

On the average there were about 48 visits a year for medical X-rays for each 100 persons in the population. Relatively few persons under 15 years of age had an X-ray visit, but from 15-64 years of age the rate remained quite stable except as noted below. In general, persons between the ages of 45-64 years reported the highest rate of medical X-ray use.



Table A. Percent distribution of X-ray visits (other than dental) during an average three-month period by number of X-ray visits in three-month period, according to selected characteristics: United States, July 1960-June 1961

Characteristic	Number of X-ray visits in three-month period				
	Total	1	2	3	4+
All persons with X-ray visits-----	100.0	75.9	14.2	5.1	4.8
Percent distribution					
<u>Age</u>					
Under 15-----	100.0	76.4	15.3	4.4	3.9
15-29-----	100.0	82.8	11.5	3.1	2.6
30-44-----	100.0	78.2	12.4	4.9	4.4
45+-----	100.0	69.7	16.9	6.7	6.7
45-64-----	100.0	70.9	16.4	6.1	6.6
65+-----	100.0	66.1	18.2	8.5	7.3
<u>Residence</u>					
Urban-----	100.0	75.7	14.3	5.3	4.7
Inside urbanized areas-----	100.0	75.8	14.3	5.2	4.7
Other urban places-----	100.0	75.3	14.4	5.6	4.8
Rural-----	100.0	76.3	14.0	4.8	4.9
<u>Family income</u>					
Under \$2,000-----	100.0	75.4	13.6	5.9	5.1
\$2,000-3,999-----	100.0	76.5	14.6	4.0	4.9
\$4,000-6,999-----	100.0	76.0	13.9	5.5	4.5
\$7,000+-----	100.0	76.0	14.3	4.8	4.9
Unknown-----	100.0	74.7	15.5	5.6	4.3
<u>Type of X-ray</u>					
Diagnostic-----	100.0	76.4	14.3	5.0	4.4
Treatment-----	100.0	38.0	10.4	13.5	38.5

The rate of medical X-ray visits was about the same for members of white and nonwhite races for all ages combined and for some of the age groups (table 1). There was a substantial racial difference in the rate for the age groups 15-44 years for both sexes combined and for females; moreover, there is an apparent, but not significant, difference in the rate for males aged 15-44 (table 1 and fig. 1).<sup>1</sup> This difference is partially

explained by the higher rate of chest X-ray visits among nonwhite persons in the middle years of life (table B). No such racial difference in rates was present in the data for other areas of the body x-rayed.

The rate of X-ray visits for males was higher than that for females in each age group (table 1 and fig. 2). The sex difference in rates was marked among persons 45 years and over, probably because of the high frequency of chest X-rays among males. The contradictory data in table 1 showing higher rates for nonwhite females than for nonwhite males in the age groups 15-64 may

<sup>1</sup>The rates shown in figures 1-6, 9-15 are plotted on semilogarithmic scale so that visual comparisons can be made of relative amounts of variation within and between individual curves.

Table B. Number of chest X-ray visits per 100 persons per year, by race, sex, and age:  
United States, July 1960-June 1961

Sex and age	Race		
	All races	White	Nonwhite
<u>Both sexes</u>	Number of chest X-ray visits per 100 persons per year		
All ages-----	28.7	27.6	37.4
Under 15-----	6.8	6.2	10.7
15-29-----	37.0	34.4	55.4
30-44-----	40.0	37.7	59.9
45+-----	39.7	38.8	50.1
45-64-----	42.6	41.3	55.5
65+-----	33.0	33.0	33.0
<u>Male</u>			
All ages-----	29.9	29.1	35.9
Under 15-----	7.3	6.4	12.3
15-29-----	35.8	34.1	48.5
30-44-----	41.5	39.9	55.6
45+-----	45.0	44.1	53.5
45-64-----	47.5	46.4	57.7
65+-----	38.7	38.5	(*)
<u>Female</u>			
All ages-----	27.6	26.1	38.8
Under 15-----	6.4	6.0	9.0
15-29-----	38.0	34.7	61.5
30-44-----	38.7	35.6	63.4
45+-----	35.1	33.9	47.0
45-64-----	38.1	36.5	53.5
65+-----	28.5	28.6	(*)

be due to sampling error since the difference in rates is not statistically significant.

There were also differences in the rates of medical X-ray visits by place of residence (table 2 and fig. 3). Residents of urbanized areas reported the highest rate, while rural-farm residents had the lowest rate. This urban-rural difference, which has also been noted in statistics dealing with the use of other health facilities, e.g., physician and dental visits, may be due to the lesser availability of X-ray facilities in rural areas. The sex difference mentioned above ap-

pears to be less pronounced in rural areas than in urban areas, but this may be an artifact resulting from sampling error. The age curve of the rates was substantially of the same pattern in each area of residence.

Residents of the Western States reported higher rates of medical X-ray visits than did residents in the Northeast, North Central, and South regions (table 3 and fig. 4). The lowest rates were reported from the Northeast. The sex difference in rates was most pronounced in the North Central region, and least in the South. The

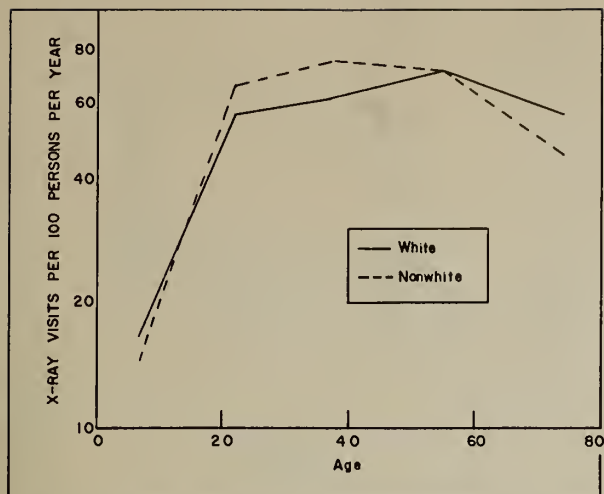


Figure 1. Medical X-ray visits per 100 persons per year, by race and age.

age changes in the rates were about the same in all four regions, except that in the West the rate for persons 15-29 years of age was somewhat higher than the comparable rate in the other regions. Males in this age group had a much higher rate than did females. A possible explanation is

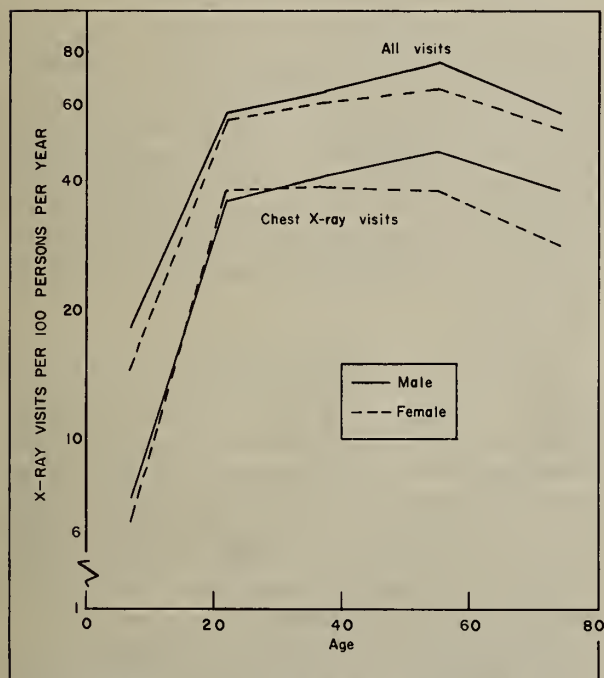


Figure 2. Medical X-ray visits and chest X-ray visits per 100 persons per year, by sex and age.

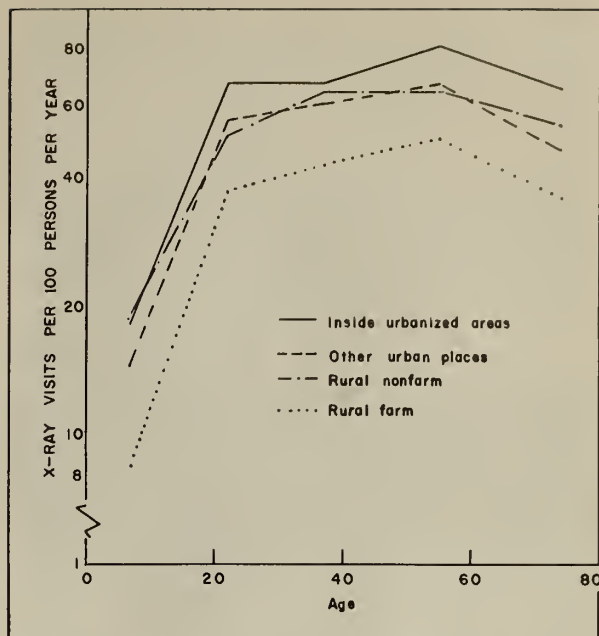


Figure 3. Medical X-ray visits per 100 persons per year, by residence and age.

that males in this age-sex group are known to have a high rate of injury and the injury rate is higher in the West than in any other geographic region (see Health Statistics, Series B, No. 37).

In general, the rate of medical X-ray visits was substantially the same in each age-sex-in-

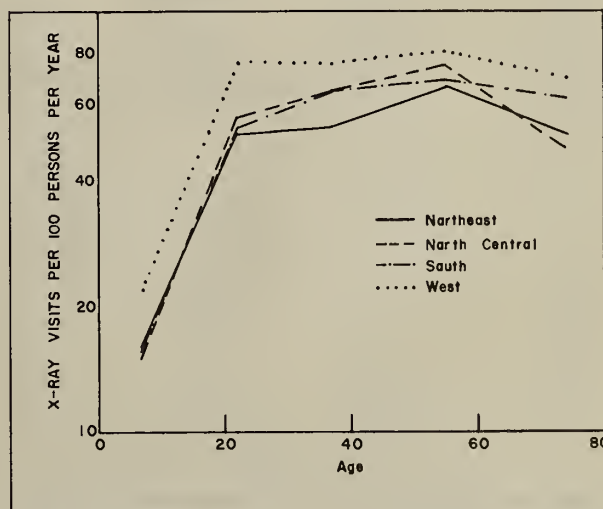


Figure 4. Medical X-ray visits per 100 persons per year, by region and age.



come group, except in three instances (table 4 and fig. 5). These three instances were: in the \$7,000 and over family income group, the higher rate of X-ray visits among males was more pronounced than in the other income groups; and for both sexes combined in the top income group the rate for the 45-64 year age group was higher than that for the same ages in the other income groups; and in the under \$2,000 income group the rate for females of ages 15-29 years was substantially higher than that in the other income groups.

There are several possible explanations for these differences. There may be less concern over the possible hazards of radiation for routine detection purposes in men than in women of younger adult ages. It is also possible that men more often receive X-rays in connection with their employment. Among higher income males in the 45-64 year age range, the high rate of X-ray visits could reflect a greater use of X-rays in physical examinations aimed at detection of lung cancer, cardiac abnormalities, and other conditions to which this group is considered subject to risk. In the upper income group a relatively high proportion of the X-ray visits were in doctors' offices.

Persons in lower income families have a high proportion of X-ray visits in hospitals. There may be an association between this and the high rate of X-rays, especially chest X-rays, in lower income women of childbearing ages. Women in this group, requiring the services of a physician for prenatal or postnatal care, or of a hospital for delivery, may frequently receive chest X-rays as a

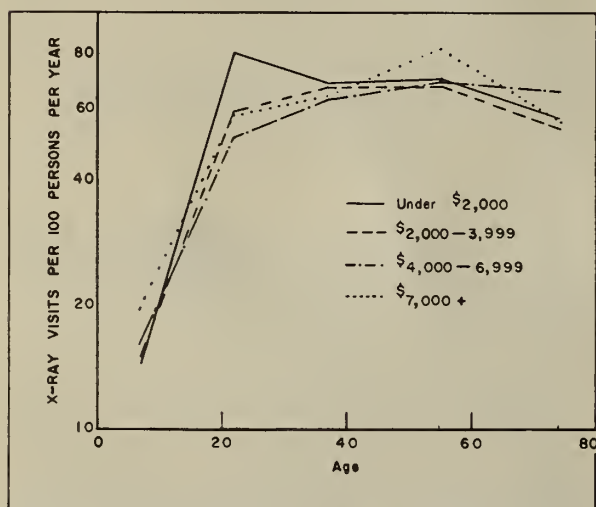


Figure 5. Medical X-ray visits per 100 persons per year, by family income and age.

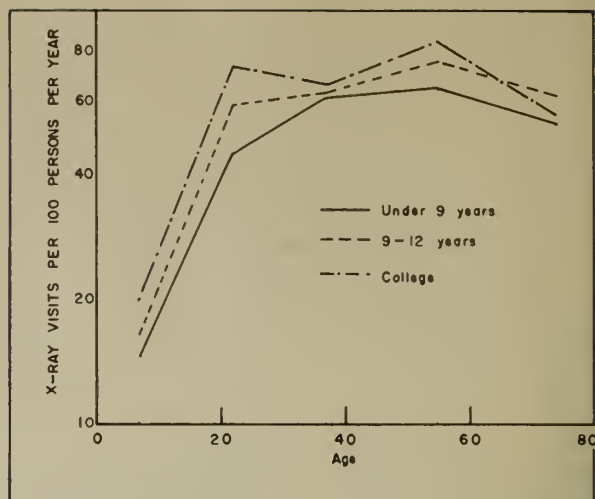


Figure 6. Medical X-ray visits per 100 persons per year, by education of head of the family and age.

part of physicians' assessments of their health. This is often done in prenatal clinics or at photo-fluorographic units in certain hospitals.

The rate of medical X-ray visits rose markedly with increasing levels of education of the head of the family (table 5 and fig. 6). Again within the two age groups, 15-29 and 45-64 years, the greatest variation among educational groups was noted. Table 6 shows the effects on the rates of medical X-ray visits resulting from cross-classification of family income and education of head of the family. The table indicates that the use of medical X-rays is related to educational level and that income does not influence this relationship to any great extent.

X-rays of the chest area were responsible for more than half of the medical X-ray visits (table 7 and fig. 7). A total of about 93 million gross areas of the body were x-rayed during the 85 million visits, or an average of 1.1 body areas per visit. Therefore during relatively few visits were multiple areas of the body x-rayed. The second area of the body in order of frequency of area x-rayed was the extremities. The sex difference in rate of X-ray visits noted for all visits was present in some of the data by area of the body, notably in X-rays of the chest and extremities, the two largest groups. However, females had the higher rate of X-ray visits for the lower

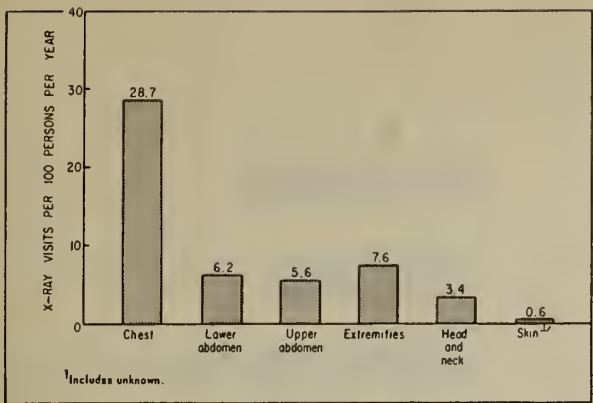


Figure 7. Medical X-ray visits per 100 persons per year, by area of body x-rayed.

and upper abdomen. X-rays of the head and neck were equal in rate between the sexes. It is probable that the peaking in the rate of X-ray visits for extremities for males aged 15-29 was caused by a high injury rate for this age group (see Health Statistics, Series B, No. 37).

There were about 82 million X-ray visits for diagnosis and 3 million visits for treatment (table C). About 2 million of the total of 85 million visits were for both diagnosis and treatment during the same visit: one area of the body was treated by X-rays while another area was x-rayed for diagnostic purposes.

About 89 million of the 93 million areas of the body x-rayed, or 96 percent of the total, were x-rayed for diagnostic purposes. The remainder were treated by X-radiation (compare tables C and 7). The chest and extremities were the most frequent sites of diagnostic X-rays with about 72 percent of the total number of diagnostic

Table C. Number of diagnostic X-ray visits and number per 100 persons per year, by race and area of body x-rayed: United States, July 1960-June 1961

Area of body	Race		
	All races	White	Nonwhite
Number of X-ray visits in thousands			
All X-ray visits <sup>1</sup> -----	82,288	72,725	9,564
Chest-----	50,588	42,933	7,654
Lower abdomen-----	10,418	9,857	561
Upper abdomen-----	9,724	8,981	743
Extremities-----	13,215	12,294	921
Head and neck-----	5,102	4,669	433
Skin <sup>2</sup> -----	(*)	(*)	(*)
Number per 100 persons per year			
All X-ray visits-----	46.2	46.2	46.6
Chest-----	28.4	27.3	37.3
Lower abdomen-----	5.9	6.3	2.7
Upper abdomen-----	5.5	5.7	3.6
Extremities-----	7.4	7.8	4.5
Head and neck-----	2.9	3.0	2.1
Skin <sup>2</sup> -----	(*)	(*)	(*)

<sup>1</sup>The sum of visits by area of body x-rayed may be greater than the total number of visits, since during one visit more than one area of body may be x-rayed.

<sup>2</sup>Includes unknown areas of the body



X-rays. Of the approximately 4 million areas of the body treated by X-rays, the skin and head and neck accounted for about 49 percent of the total.

There was a racial difference in the use of diagnostic X-rays. The rate of diagnostic chest X-rays was somewhat greater for nonwhite persons than for white persons. However, the rates for the abdomen and extremities were higher for white persons than for nonwhite persons. No racial differences were apparent for treatment X-rays.

#### Areas of the Body X-rayed by Place of X-ray

The place of medical X-ray differs substantially according to the area of the body x-rayed. Therefore, the place of X-ray was tabulated for each area of the body rather than for the X-ray visit. Three locations are shown in tables 8-10; hospital includes both inpatient and outpatient X-ray services, doctor's office includes radiologists and other doctors with X-ray equipment in their offices, and other includes such places as schools, mobile units, health departments, etc. The number of unknown places of X-ray included in this latter group cannot be determined.

The majority of X-rays for areas of the body other than the chest were performed in hospitals (table 8 and fig. 8). For the chest, about two fifths of the X-rays were made in other and unknown places. It is probable that most of these were diagnostic chest X-rays conducted for screening purposes by various agencies, such as health departments, industries, schools, and nonprofit health agencies. The largest percentages of X-rays performed in doctors' offices were for the extremities, head and neck, skin, and other and unknown areas of the body.

Table 9 shows the distribution by place for X-rays of the chest, and table 10 shows place of X-ray for other combined body areas according to various demographic, social, and economic characteristics. In general, smaller proportions of X-rays of the chest were performed in hospitals than corresponding percentages of X-rays of other areas of the body. Table 9 shows that in only three demographic groups were more than half of the chest X-ray visits reported as having been made to the hospital, namely, persons under 15, persons with family income under \$2,000, and persons residing in the New England States. Relatively small proportions of chest X-ray visits were made to the doctor's office, while larger percentages were made to other and unknown

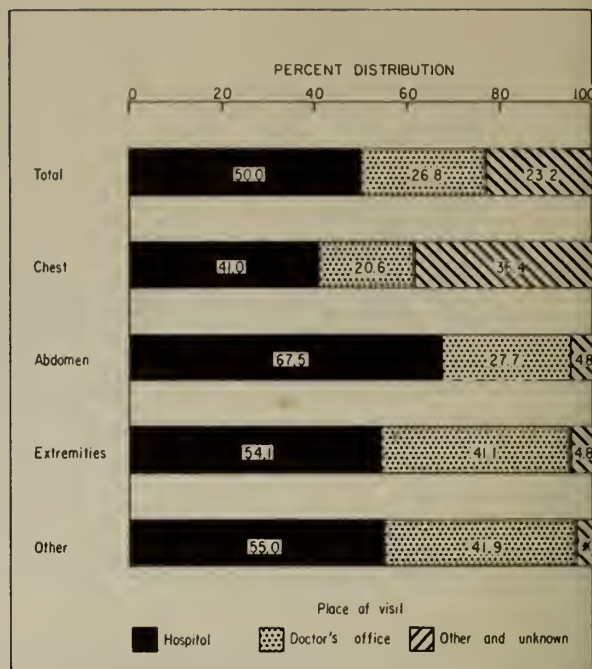


Figure 8. Percent distribution of areas of the body x-rayed by place of X-ray.

places of X-rays. For areas of the body other than the chest the hospital was the most frequent place of X-rays in all demographic classes.

The place of X-ray treatment, shown in table D, probably reflects the location of available equipment required for treatment of various areas of the body. Low-voltage X-ray equipment used for treatment of skin conditions is usually available in the dermatologist's office. Deep X-ray treatment for pathology of the chest and abdomen is usually performed in the hospital. The large percentage of treatment X-rays of the extremities occurring in the doctor's office perhaps results from the use of X-rays to determine proper reduction and placement of casts in fractures or dislocations. The percentages shown in this table are based on relatively small numbers and should be interpreted with caution due to high sampling errors.

## DENTAL X-RAY VISITS

The data on dental X-ray visits will be more meaningful to readers if reference is made to other reports from the U. S. National Health Survey on dental care. Health Statistics, Series B,

Table D. Percent distribution of areas of the body treated by X-rays, by place of X-ray: United States, July 1960-June 1961

Area of body	Total areas of body treated by X-rays	Place of X-ray		
		Hospital	Doctor's office	Other and unknown
	Percent distribution			
All areas of body-----	100.0	44.5	51.0	4.6
Chest-----	100.0	76.9	12.8	10.3
Abdomen-----	100.0	80.9	9.2	9.8
Extremities-----	100.0	31.7	65.2	3.1
Head and neck-----	100.0	47.3	50.6	1.9
Skin-----	100.0	4.7	94.4	0.9

Nos. 14 and 15, covering the period from July 1957-June 1959, show data on interval and frequency of visits, and volume of visits, by the same variables shown in this report.

An estimated 49 million dental X-ray visits, or an average of 27 per 100 persons, occurred during the 12-month period from July 1960-June 1961 (table 11). Figure 9 shows a comparison between the age distribution of dental X-ray visits with the age distribution of all dental visits shown in Series B, No. 15, based on data collected during July 1957-June 1959. The two curves are quite similar, and give the impression that during one of each five dental visits a dental X-ray procedure is performed. In each instance the age group 15-29 years reported the highest rate of dental services.

There was a substantial racial difference in the rates of dental X-ray visits; the rate per 100 white persons was about twice that for nonwhite persons (table 11 and fig. 10). Such a difference in rates could imply lesser need for dental X-rays or inability or unwillingness to obtain them. Table E shows that within each racial group, the rate of dental X-ray visits rose remarkably with increased income. Since about 31 percent of the white population has a family income of \$4,000 or less as compared with 72 percent of the nonwhite population (table 21), it is probable that much of the difference between racial groups in the rate of dental X-rays results from factors associated with income.

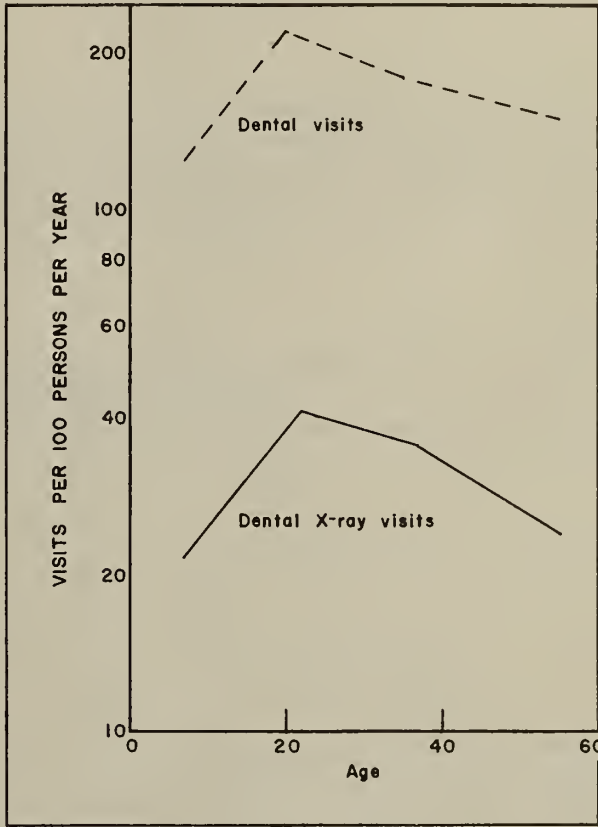


Figure 9. Comparison between rates per 100 persons per year of dental X-ray visits and dental visits (adapted from table 2, Health Statistics Series B-15, July 1957-June 1959), by ages under 65.

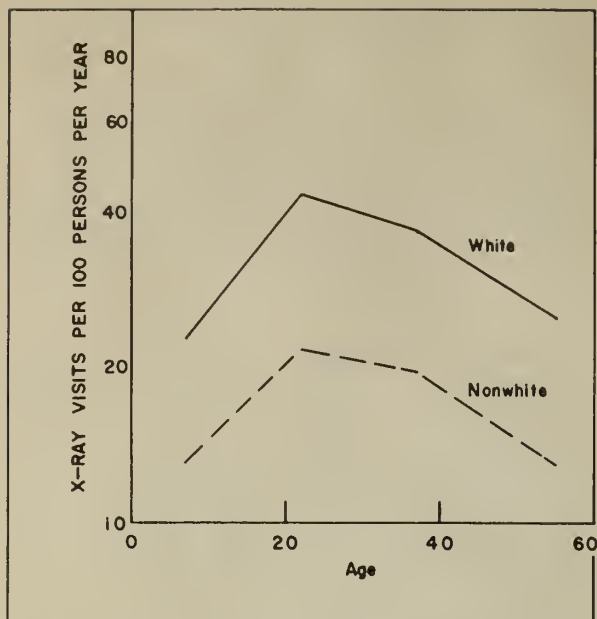


Figure 10. Dental X-ray visits per 100 persons per year, by race and ages under 65.

A considerable difference in rates by sex is present in the data shown in figure 11, with the rate for females higher in each age group than the corresponding rate for males. This sex difference was not noted for nonwhite persons. The

difference was marked in the age group 15-29 years, and may be explained by the use of dental X-rays for straightening of teeth and other dental care for cosmetic reasons. Another cause may be childbirth and associated increase in dental caries.

The rate of dental X-ray visits was highest in urbanized areas and lowest in rural areas (table 12 and fig. 12). The sex-age difference at ages 15-29 years was marked in urbanized areas of residence but the difference was smaller in other places of residence.

Persons in the West and Northeast regions of the United States had considerably higher rates of dental X-ray visits than did persons residing in the South and North Central States (table 13 and fig. 13). Except in the South the rate was highest for the age group 15-29 years.

The dental X-ray visit rate was directly related to the rise in family income (table 14 and fig. 14). There was a substantial increase in the rate for the income group \$7,000 and over compared with that for the next lower income group. Members of the highest income group probably make more use of orthodontia and of preventive dental practice through increased frequency of dental examinations than do members of the other groups. The persons in the lower income groups probably incur dental expense for X-ray visits as the need arises. This is suggested by the fact that for the age group 15-29, the rates are quite closely comparable for each of the three lower income groups.

Table E. Number of dental X-ray visits per 100 persons per year, by race, family income, and age: United States, July 1960-June 1961

Age	White		Nonwhite	
	Under \$4,000	\$4,000+	Under \$4,000	\$4,000+
Number of dental X-ray visits per 100 persons per year				
All ages-----	16.8	34.8	11.6	25.2
Under 15-----	10.5	27.0	10.7	18.1
15-29-----	35.1	48.0	16.1	37.3
30-44-----	20.2	42.2	16.5	26.6
45+-----	10.8	28.6	6.1	23.8
45-64-----	13.6	31.1	7.0	27.0
65+-----	7.7	17.5	3.6	5.3



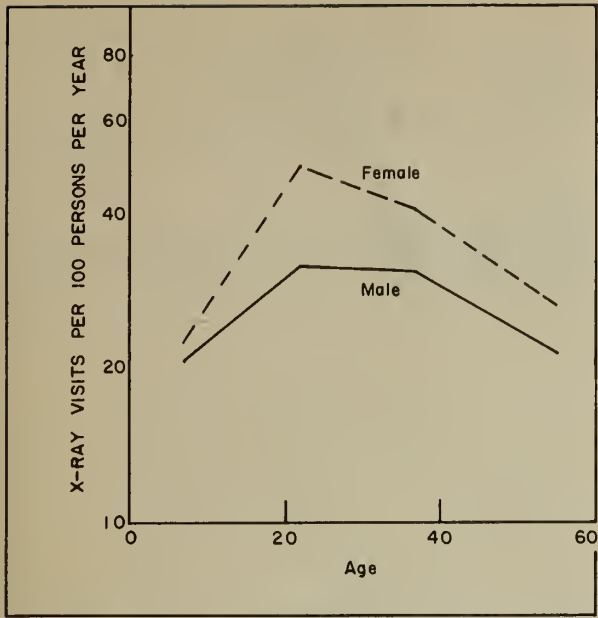


Figure 11. Dental X-ray visits per 100 persons per year, by sex and ages under 65.

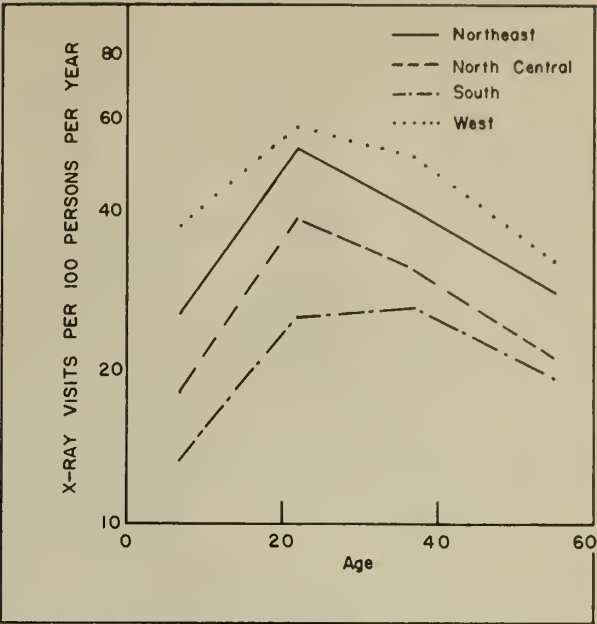


Figure 13. Dental X-ray visits per 100 persons per year, by region and ages under 65.

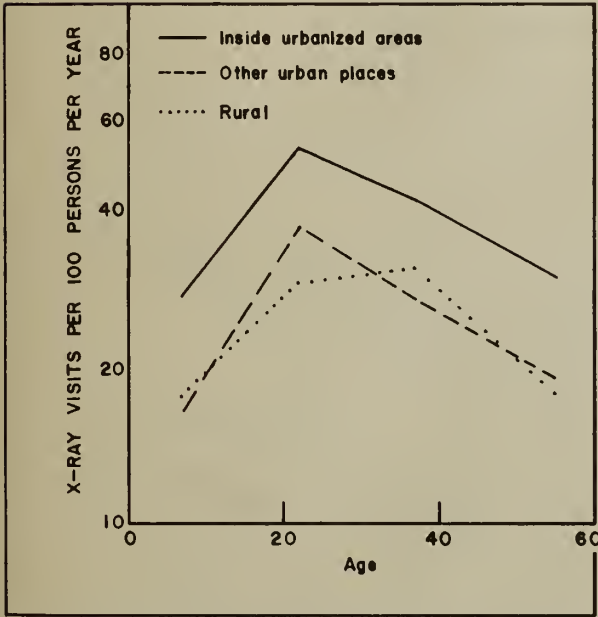


Figure 12. Dental X-ray visits per 100 persons per year, by residence and ages under 65.

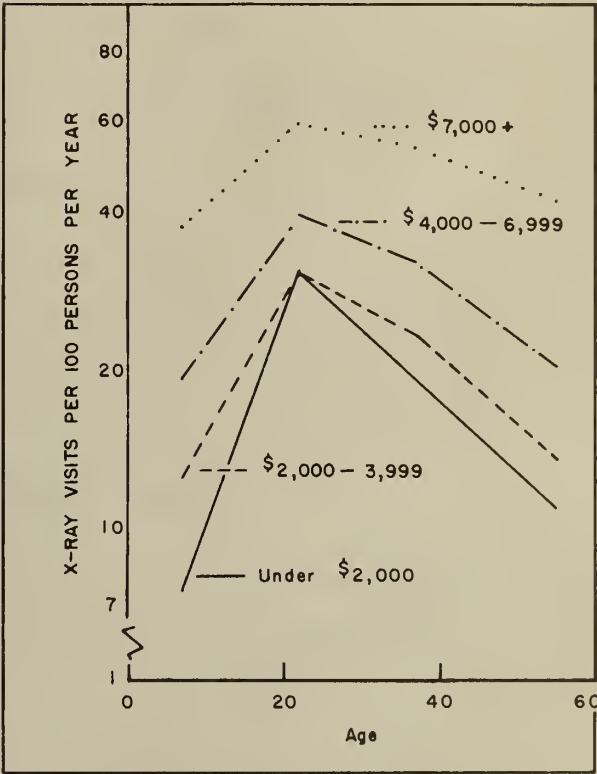


Figure 14. Dental X-ray visits per 100 persons per year, by family income and ages under 65.

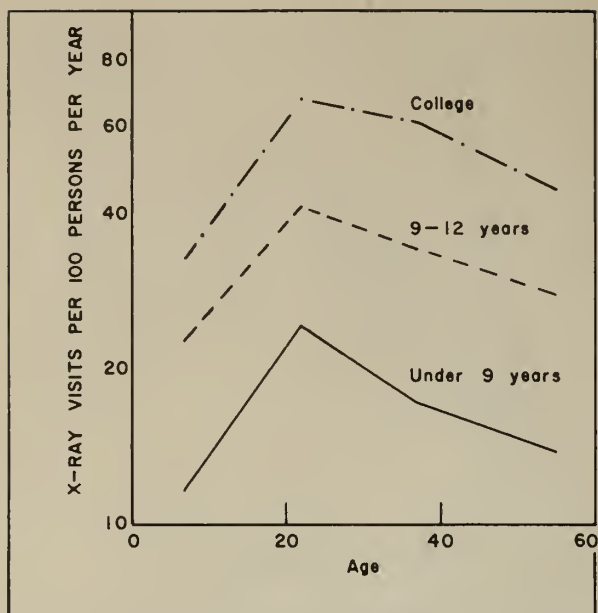


Figure 15. Dental X-ray visits per 100 persons per year, by education of head of the family and ages under 65.

Table 15 and figure 15 show a substantial rise in the rate of dental X-ray visits with increase in education of head of the family. The rise in rate closely resembles that shown in the previous table for family income. Such a similarity in rates is expected since, in general, higher income is associated with higher educational level (table 20).

Tables 16-21 show the populations used in computing the rates presented in this report.



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Table 1. Number of medical X-ray visits and number of medical X-ray visits per 100 persons per year, by race, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Race					
	All races	White	Nonwhite	All races	White	Nonwhite
<u>Both sexes</u>	Number of medical X-ray visits in thousands			Number of medical X-ray visits per 100 persons per year		
All ages-----	85,303	75,647	9,656	47.9	48.0	47.0
Under 15-----	9,403	8,217	1,185	16.4	16.7	14.6
15-29-----	19,418	16,630	2,787	57.1	55.9	65.5
30-44-----	22,044	19,269	2,775	63.0	61.5	75.3
45+-----	34,439	31,531	2,908	66.5	66.6	64.9
45-64-----	25,852	23,435	2,418	71.2	71.2	71.3
65+-----	8,587	8,096	491	55.4	56.2	45.0
<u>Male</u>						
All ages-----	43,063	38,529	4,535	49.7	50.2	45.8
Under 15-----	5,308	4,621	687	18.2	18.4	16.8
15-29-----	9,463	8,234	1,229	58.4	58.0	61.3
30-44-----	10,891	9,689	1,202	64.9	64.2	71.6
45+-----	17,401	15,985	1,416	71.2	71.7	66.4
45-64-----	13,345	12,231	1,114	76.3	77.1	68.7
65+-----	4,057	3,754	(*)	58.4	58.3	(*)
<u>Female</u>						
All ages-----	42,240	37,118	5,122	46.2	46.0	48.1
Under 15-----	4,095	3,596	498	14.6	15.0	12.3
15-29-----	9,954	8,396	1,558	55.9	54.0	69.3
30-44-----	11,153	9,580	1,573	61.2	59.1	78.4
45+-----	17,037	15,545	1,492	62.3	62.1	63.4
45-64-----	12,507	11,204	1,304	66.5	65.8	73.5
65+-----	4,530	4,342	(*)	53.0	54.4	(*)

Table 2. Number of medical X-ray visits and number of medical X-ray visits per 100 persons per year, by residence, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Residence					
	All areas	Urban			Rural nonfarm	Rural farm
		Total	Inside urbanized areas	Other urban places		
Number of medical X-ray visits in thousands						
Both sexes						
All ages-----	85,303	56,593	43,322	13,271	22,190	6,520
Under 15-----	9,403	5,459	4,137	1,322	3,340	604
15-29-----	19,418	13,269	9,960	3,308	4,698	1,451
30-44-----	22,044	13,747	10,574	3,173	6,776	1,521
45+-----	34,439	24,119	18,651	5,468	7,377	2,943
45-64-----	25,852	18,103	14,087	4,017	5,501	2,248
65+-----	8,587	6,016	4,565	1,451	1,876	696
Male						
All ages-----	43,063	28,472	21,772	6,699	11,062	3,530
Under 15-----	5,308	3,241	2,491	750	1,777	(*)
15-29-----	9,463	6,283	4,535	1,747	2,291	890
30-44-----	10,891	6,850	5,380	1,471	3,184	857
45+-----	17,401	12,098	9,367	2,731	3,810	1,494
45-64-----	13,345	9,401	7,453	1,948	2,931	1,013
65+-----	4,057	2,697	1,914	783	879	481
Female						
All ages-----	42,240	28,122	21,549	6,572	11,128	2,990
Under 15-----	4,095	2,218	1,646	572	1,563	(*)
15-29-----	9,954	6,986	5,425	1,561	2,407	561
30-44-----	11,153	6,897	5,194	1,703	3,592	665
45+-----	17,037	12,021	9,284	2,737	3,566	1,450
45-64-----	12,507	8,703	6,633	2,069	2,570	1,235
65+-----	4,530	3,319	2,651	668	997	(*)
Number of medical X-ray visits per 100 persons per year						
Both sexes						
All ages-----	47.9	53.0	56.0	45.0	44.2	31.1
Under 15-----	16.4	17.1	18.2	14.5	18.4	8.4
15-29-----	57.1	63.9	67.2	55.6	50.3	37.3
30-44-----	63.0	65.7	67.6	60.0	63.9	43.8
45+-----	66.5	72.4	77.1	60.0	61.1	45.8
45-64-----	71.2	78.0	81.9	66.8	64.2	49.9
65+-----	55.4	59.6	65.3	46.9	53.7	36.2
Male						
All ages-----	49.7	55.9	59.1	47.5	44.7	32.3
Under 15-----	18.2	20.1	21.7	16.0	19.3	(*)
15-29-----	58.4	64.1	64.9	62.0	52.6	43.8
30-44-----	64.9	69.3	72.8	58.9	61.3	50.4
45+-----	71.2	80.2	85.4	66.5	63.9	44.0
45-64-----	76.3	87.1	93.1	70.0	67.5	42.9
65+-----	58.4	62.8	64.5	59.0	54.1	46.5
Female						
All ages-----	46.2	50.3	53.1	42.8	43.8	29.7
Under 15-----	14.6	14.2	14.6	12.9	17.5	(*)
15-29-----	55.9	63.7	69.2	49.9	48.3	30.2
30-44-----	61.2	62.5	62.9	61.1	66.4	37.5
45+-----	62.3	66.0	70.2	54.7	58.5	47.7
45-64-----	66.5	70.0	72.1	64.0	60.8	57.4
65+-----	53.0	57.3	65.8	37.8	53.3	(*)



Table 3. Number of medical X-ray visits and number of medical X-ray visits per 100 persons per year, by region, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Region				
	All regions	North-east	North Central	South	West
<b>Both sexes</b>					
Number of medical X-ray visits in thousands					
All ages-----	85,303	20,514	23,544	25,170	16,076
Under 15-----	9,403	2,178	2,400	2,806	2,018
15-29-----	19,418	4,316	5,208	5,883	4,011
30-44-----	22,044	5,236	6,180	6,440	4,189
45+-----	34,439	8,784	9,756	10,040	5,859
45-64-----	25,852	6,567	7,505	7,386	4,395
65+-----	8,587	2,217	2,251	2,654	1,465
<b>Male</b>					
All ages-----	43,063	10,399	12,389	12,265	8,011
Under 15-----	5,308	1,388	1,361	1,519	1,040
15-29-----	9,463	1,856	2,708	2,720	2,179
30-44-----	10,891	2,636	3,198	3,052	2,005
45+-----	17,401	4,518	5,122	4,973	2,787
45-64-----	13,345	3,442	3,947	3,726	2,230
65+-----	4,057	1,077	1,175	1,248	557
<b>Female</b>					
All ages-----	42,240	10,115	11,155	12,905	8,065
Under 15-----	4,095	791	1,040	1,287	978
15-29-----	9,954	2,459	2,500	3,163	1,831
30-44-----	11,153	2,600	2,982	3,388	2,184
45+-----	17,037	4,266	4,633	5,067	3,072
45-64-----	12,507	3,125	3,557	3,660	2,164
65+-----	4,530	1,140	1,076	1,407	907
<b>Both sexes</b>					
Number of medical X-ray visits per 100 persons per year					
All ages-----	47.9	44.3	47.3	46.4	57.9
Under 15-----	16.4	15.8	15.0	15.5	21.8
15-29-----	57.1	51.3	55.9	53.7	75.5
30-44-----	63.0	53.4	64.5	64.1	75.3
45+-----	66.5	61.4	65.9	66.7	76.6
45-64-----	71.2	66.1	74.4	68.6	79.6
65+-----	55.4	50.8	47.6	61.9	68.7
<b>Male</b>					
All ages-----	49.7	46.7	50.3	46.8	59.6
Under 15-----	18.2	19.7	16.5	16.5	22.4
15-29-----	58.4	46.7	59.2	52.3	88.9
30-44-----	64.9	56.7	67.5	64.6	75.3
45+-----	71.2	68.5	72.3	70.5	75.3
45-64-----	76.3	73.5	80.3	72.4	81.3
65+-----	58.4	56.2	54.2	65.3	58.1
<b>Female</b>					
All ages-----	46.2	42.2	44.4	46.1	56.3
Under 15-----	14.6	11.8	13.3	14.4	21.3
15-29-----	55.9	55.3	52.8	54.9	63.9
30-44-----	61.2	50.5	61.5	63.6	75.2
45+-----	62.3	55.4	60.0	63.4	77.8
45-64-----	66.5	59.5	68.8	65.2	78.0
65+-----	53.0	46.6	42.0	59.2	77.3



Table 4. Number of medical X-ray visits and number of medical X-ray visits per 100 persons per year, by family income, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Family income					
	All incomes	Under \$2,000	\$2,000-3,999	\$4,000-6,999	\$7,000+	Unknown
<b>Both sexes</b>						
Number of medical X-ray visits in thousands						
All ages-----	85,303	12,944	16,033	27,330	25,126	3,870
Under 15-----	9,403	852	1,626	3,628	2,961	(*)
15-29-----	19,418	3,493	4,154	6,028	4,912	831
30-44-----	22,044	1,821	3,584	8,413	7,277	948
45+-----	34,439	6,778	6,669	9,260	9,976	1,756
45-64-----	25,852	3,608	4,656	7,529	8,824	1,235
65+-----	8,587	3,169	2,013	1,732	1,152	521
<b>Male</b>						
All ages-----	43,063	5,988	7,921	13,649	13,534	1,973
Under 15-----	5,308	537	908	1,919	1,733	(*)
15-29-----	9,463	1,437	1,851	2,922	2,827	426
30-44-----	10,891	788	1,731	4,244	3,614	514
45+-----	17,401	3,225	3,432	4,563	5,360	822
45-64-----	13,345	1,788	2,348	3,721	4,865	624
65+-----	4,057	1,437	1,084	842	495	(*)
<b>Female</b>						
All ages-----	42,240	6,956	8,113	13,681	11,592	1,898
Under 15-----	4,095	(*)	719	1,709	1,229	(*)
15-29-----	9,954	2,056	2,303	3,106	2,085	404
30-44-----	11,153	1,033	1,853	4,169	3,663	435
45+-----	17,037	3,553	3,237	4,697	4,616	935
45-64-----	12,507	1,821	2,308	3,808	3,960	612
65+-----	4,530	1,732	930	889	656	(*)
<b>Both sexes</b>						
Number of medical X-ray visits per 100 persons per year						
All ages-----	47.9	54.4	46.6	44.2	52.4	38.9
Under 15-----	16.4	14.4	14.8	16.1	19.6	(*)
15-29-----	57.1	79.6	58.0	49.7	57.8	45.9
30-44-----	63.0	67.5	66.2	61.9	63.1	53.9
45+-----	66.5	62.7	61.7	68.2	77.7	46.6
45-64-----	71.2	70.3	66.6	68.9	81.9	49.7
65+-----	55.4	55.8	52.8	65.3	55.5	40.6
<b>Male</b>						
All ages-----	49.7	55.4	48.3	44.4	56.7	41.5
Under 15-----	18.2	17.5	16.3	16.7	22.7	(*)
15-29-----	58.4	67.3	54.8	51.6	68.2	49.5
30-44-----	64.9	66.5	69.1	63.4	65.1	61.7
45+-----	71.2	72.9	69.3	66.6	82.0	49.1
45-64-----	76.3	86.7	76.6	66.6	86.6	53.9
65+-----	58.4	60.9	57.5	66.5	53.7	(*)
<b>Female</b>						
All ages-----	46.2	53.5	45.1	43.9	48.1	36.6
Under 15-----	14.6	(*)	13.2	15.5	16.5	(*)
15-29-----	55.9	91.2	60.8	48.1	48.0	42.5
30-44-----	61.2	68.2	63.7	60.4	61.2	47.0
45+-----	62.3	55.6	55.3	69.8	73.2	44.7
45-64-----	66.5	59.4	58.8	71.3	76.9	46.1
65+-----	53.0	52.2	48.2	64.0	56.9	(*)

Table 5. Number of medical X-ray visits and number of medical X-ray visits per 100 persons per year, by education of family head, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Education of family head				
	All educational groups	Under 9 years	9-12 years	College	Unknown
<b>Both sexes</b>					
Number of medical X-ray visits in thousands					
All ages-----	85,303	27,792	37,909	17,705	1,898
Under 15-----	9,403	2,429	4,642	2,248	(*)
15-29-----	19,418	4,502	9,714	4,801	400
30-44-----	22,044	5,689	11,058	4,925	(*)
45+-----	34,439	15,172	12,495	5,730	1,042
45-64-----	25,852	10,440	9,918	4,760	735
65+-----	8,587	4,732	2,576	971	(*)
<b>Male</b>					
All ages-----	43,063	14,066	19,143	9,027	827
Under 15-----	5,308	1,397	2,692	1,177	(*)
15-29-----	9,463	2,274	4,722	2,371	(*)
30-44-----	10,891	2,562	5,484	2,684	(*)
45+-----	17,401	7,832	6,245	2,795	529
45-64-----	13,345	5,345	5,130	2,460	410
65+-----	4,057	2,488	1,115	(*)	(*)
<b>Female</b>					
All ages-----	42,240	13,726	18,766	8,677	1,070
Under 15-----	4,095	1,032	1,950	1,071	(*)
15-29-----	9,954	2,228	4,992	2,430	(*)
30-44-----	11,153	3,127	5,574	2,241	(*)
45+-----	17,037	7,339	6,250	2,935	513
45-64-----	12,507	5,095	4,788	2,300	(*)
65+-----	4,530	2,244	1,462	635	(*)
<b>Both sexes</b>					
Number of medical X-ray visits per 100 persons per year					
All ages-----	47.9	45.7	47.7	54.0	39.2
Under 15-----	16.4	14.7	16.5	19.9	(*)
15-29-----	57.1	45.1	58.7	72.9	46.0
30-44-----	63.0	61.0	63.3	66.1	(*)
45+-----	66.5	60.6	72.1	77.0	52.3
45-64-----	71.2	64.6	75.1	83.5	60.0
65+-----	55.4	53.4	62.4	55.8	(*)
<b>Male</b>					
All ages-----	49.7	47.1	49.9	56.4	35.6
Under 15-----	18.2	16.6	18.6	20.7	(*)
15-29-----	58.4	45.0	62.5	74.7	(*)
30-44-----	64.9	59.0	55.5	72.2	(*)
45+-----	71.2	65.2	77.8	81.5	54.5
45-64-----	76.3	69.0	79.8	89.9	70.2
65+-----	58.4	58.2	69.9	(*)	(*)
<b>Female</b>					
All ages-----	46.2	44.3	45.6	51.7	42.5
Under 15-----	14.6	12.8	14.2	19.1	(*)
15-29-----	55.9	45.2	55.5	71.1	(*)
30-44-----	61.2	62.7	61.2	59.9	(*)
45+-----	62.3	56.4	67.1	73.1	50.2
45-64-----	66.5	60.5	70.6	77.5	(*)
65+-----	53.0	48.8	57.7	60.6	(*)

Table 6. Number of medical X-ray visits and number of medical X-ray visits per 100 persons per year, by family income, education of family head, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Family income and education of family head							Income or education unknown
	Total	Under \$4,000			\$4,000+			
		Under 9 years	9-12 years	College	Under 9 years	9-12 years	College	
Number of medical X-ray visits in thousands								
Both sexes								
All ages-----	85,303	13,990	11,083	3,159	12,516	25,200	14,128	5,228
Under 15-----	9,403	1,042	1,127	(*)	1,281	3,318	1,952	414
15-29-----	19,418	2,137	3,667	1,669	2,050	5,702	3,076	1,117
30-44-----	22,044	2,426	2,451	(*)	2,978	8,102	4,454	1,246
45+-----	34,439	8,385	3,838	833	6,207	8,078	4,646	2,451
45-64-----	25,852	5,006	2,589	477	5,100	6,911	4,085	1,684
65+-----	8,587	3,379	1,249	(*)	1,107	1,167	561	768
Male								
All ages-----	43,063	7,039	5,124	1,391	6,419	13,122	7,430	2,538
Under 15-----	5,308	658	674	(*)	689	1,880	1,067	(*)
15-29-----	9,463	950	1,505	767	1,123	3,030	1,578	511
30-44-----	10,891	1,207	973	(*)	1,251	4,182	2,392	646
45+-----	17,401	4,224	1,973	(*)	3,356	4,030	2,393	1,129
45-64-----	13,345	2,442	1,378	(*)	2,739	3,574	2,160	834
65+-----	4,057	1,782	594	(*)	617	456	(*)	(*)
Female								
All ages-----	42,240	6,950	5,959	1,768	6,097	12,078	6,698	2,689
Under 15-----	4,095	384	453	(*)	593	1,439	885	(*)
15-29-----	9,954	1,187	2,162	902	927	2,672	1,499	606
30-44-----	11,153	1,219	1,478	(*)	1,727	3,920	2,062	600
45+-----	17,037	4,161	1,865	537	2,851	4,048	2,253	1,322
45-64-----	12,507	2,564	1,210	(*)	2,361	3,337	1,925	850
65+-----	4,530	1,597	655	(*)	490	711	(*)	473
Number of medical X-ray visits per 100 persons per year								
Both sexes								
All ages-----	47.9	44.2	53.8	77.1	48.9	45.8	51.3	38.8
Under 15-----	16.4	12.1	16.2	(*)	18.2	16.5	19.3	11.7
15-29-----	57.1	46.1	72.0	114.9	43.5	53.3	62.3	45.5
30-44-----	63.0	60.0	74.9	(*)	62.9	60.4	66.8	54.2
45+-----	66.5	58.4	72.8	68.9	68.0	74.6	79.8	47.2
45-64-----	71.2	63.7	80.4	73.8	69.8	75.9	85.4	49.8
65+-----	55.4	52.0	60.8	(*)	60.7	67.8	54.1	42.4
Male								
All ages-----	49.7	46.6	55.0	72.3	49.4	48.2	54.8	39.2
Under 15-----	18.2	15.0	18.7	(*)	19.2	18.4	20.8	(*)
15-29-----	58.4	41.8	67.1	93.7	45.8	61.1	69.5	43.6
30-44-----	64.9	65.0	67.2	(*)	56.1	63.9	72.0	59.4
45+-----	71.2	64.2	98.1	(*)	70.9	73.6	84.1	47.4
45-64-----	76.3	69.9	111.8	(*)	72.7	74.6	90.0	52.4
65+-----	58.4	57.8	76.3	(*)	63.6	66.0	(*)	(*)
Female								
All ages-----	46.2	42.0	52.7	81.3	48.4	43.5	47.8	38.3
Under 15-----	14.6	9.1	13.5	(*)	17.2	14.6	17.7	(*)
15-29-----	55.9	50.1	75.8	142.3	40.9	46.6	56.3	47.3
30-44-----	61.2	55.7	81.0	(*)	69.0	57.1	61.6	49.5
45+-----	62.3	53.6	57.2	67.1	64.9	75.6	75.7	47.0
45-64-----	66.5	58.8	60.9	(*)	66.7	77.2	80.7	47.5
65+-----	53.0	46.8	51.3	(*)	57.4	68.9	(*)	46.2



Table 7. Number of medical X-ray visits and number of medical X-ray visits per 100 persons per year, by area of body x-rayed, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	All medical X-ray visits <sup>1</sup>	Area of body x-rayed					
		Chest	Lower abdomen	Upper abdomen	Extremities	Head and neck	Skin <sup>2</sup>
<u>Both sexes</u>		Number of medical X-ray visits in thousands					
All ages-----	85,303	51,084	11,119	9,969	13,610	5,972	1,000
Under 15-----	9,403	3,912	818	378	3,399	1,298	(*)
15-29-----	19,418	12,576	1,752	1,637	3,225	1,117	(*)
30-44-----	22,044	14,013	2,584	2,828	2,674	1,384	(*)
45+-----	34,439	20,582	5,966	5,126	4,312	2,172	(*)
45-64-----	25,852	15,461	4,090	3,909	3,191	1,632	(*)
65+-----	8,587	5,121	1,876	1,217	1,121	540	(*)
<u>Male</u>							
All ages-----	43,063	25,868	4,897	4,494	7,581	2,879	497
Under 15-----	5,308	2,115	(*)	(*)	2,072	805	(*)
15-29-----	9,463	5,802	766	585	2,285	424	(*)
30-44-----	10,891	6,963	1,153	1,293	1,519	555	(*)
45+-----	17,401	10,987	2,656	2,443	1,704	1,094	(*)
45-64-----	13,345	8,299	2,010	1,870	1,386	825	(*)
65+-----	4,057	2,688	646	574	(*)	(*)	(*)
<u>Female</u>							
All ages-----	42,240	25,216	6,222	5,475	6,028	3,092	502
Under 15-----	4,095	1,797	496	(*)	1,326	493	(*)
15-29-----	9,954	6,774	986	1,052	940	692	(*)
30-44-----	11,153	7,050	1,431	1,535	1,154	829	(*)
45+-----	17,037	9,595	3,310	2,683	2,607	1,078	(*)
45-64-----	12,507	7,161	2,080	2,040	1,806	807	(*)
65+-----	4,530	2,434	1,229	643	802	(*)	(*)
<u>Both sexes</u>		Number of medical X-ray visits per 100 persons per year					
All ages-----	47.9	28.7	6.2	5.6	7.6	3.4	0.6
Under 15-----	16.4	6.8	1.4	0.7	5.9	2.3	(*)
15-29-----	57.1	37.0	5.2	4.8	9.5	3.3	(*)
30-44-----	63.0	40.0	7.4	8.1	7.6	4.0	(*)
45+-----	66.5	39.7	11.5	9.9	8.3	4.2	(*)
45-64-----	71.2	42.6	11.3	10.8	8.8	4.5	(*)
65+-----	55.4	33.0	12.1	7.8	7.2	3.5	(*)
<u>Male</u>							
All ages-----	49.7	29.9	5.7	5.2	8.8	3.3	0.6
Under 15-----	18.2	7.3	(*)	(*)	7.1	2.8	(*)
15-29-----	58.4	35.8	4.7	3.6	14.1	2.6	(*)
30-44-----	64.9	41.5	6.9	7.7	9.1	3.3	(*)
45+-----	71.2	45.0	10.9	10.0	7.0	4.5	(*)
45-64-----	76.3	47.5	11.5	10.7	7.9	4.7	(*)
65+-----	58.4	38.7	9.3	8.3	(*)	(*)	(*)
<u>Female</u>							
All ages-----	46.2	27.6	6.8	6.0	6.6	3.4	0.5
Under 15-----	14.6	6.4	1.8	(*)	4.7	1.8	(*)
15-29-----	55.9	38.0	5.5	5.9	5.3	3.9	(*)
30-44-----	61.2	38.7	7.9	8.4	6.3	4.5	(*)
45+-----	62.3	35.1	12.1	9.8	9.5	3.9	(*)
45-64-----	66.5	38.1	11.1	10.8	9.6	4.3	(*)
65+-----	53.0	28.5	14.4	7.5	9.4	(*)	(*)

<sup>1</sup>The sum of visits by area of body x-rayed may be greater than the total number of visits, since during one visit more than one area of body may be x-rayed.

<sup>2</sup>Skin includes an estimated 39,000 unknown areas x-rayed.

Table 8. Number and percent distribution of areas of body x-rayed, by place of X-ray, according to age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Area of body and age	Place of X-ray							
	Total areas of body x-rayed	Hospital	Doctor's office	Other and unknown	Total areas of body x-rayed	Hospital	Doctor's office	Other and unknown
<u>All areas of body</u>	Number of areas of body in thousands				Percent distribution			
All ages-----	92,752	46,383	24,856	21,513	100.0	50.0	26.8	23.2
Under 15-----	9,876	5,640	3,121	1,115	100.0	57.1	31.6	11.3
15-29-----	20,654	10,092	4,436	6,126	100.0	48.9	21.5	29.7
30-44-----	23,729	10,483	6,754	6,493	100.0	44.2	28.5	27.4
45+-----	38,493	20,169	10,545	7,779	100.0	52.4	27.4	20.2
45-64-----	28,539	14,511	7,896	6,132	100.0	50.8	27.7	21.5
65+-----	9,954	5,658	2,649	1,647	100.0	56.8	26.6	16.5
<u>Chest</u>								
All ages-----	51,084	20,955	10,499	19,631	100.0	41.0	20.6	38.4
Under 15-----	3,912	2,134	962	816	100.0	54.6	24.6	20.9
15-29-----	12,576	5,080	1,746	5,750	100.0	40.4	13.9	45.7
30-44-----	14,013	4,828	3,014	6,170	100.0	34.5	21.5	44.0
45+-----	20,582	8,912	4,776	6,894	100.0	43.3	23.2	33.5
45-64-----	15,461	6,460	3,442	5,558	100.0	41.8	22.3	35.9
65+-----	5,121	2,451	1,334	1,336	100.0	47.9	26.0	26.1
<u>Abdomen</u>								
All ages-----	21,088	14,232	5,843	1,013	100.0	67.5	27.7	4.8
Under 15-----	1,196	812	(*)	(*)	100.0	67.9	(*)	(*)
15-29-----	3,388	2,384	838	(*)	100.0	70.4	24.7	(*)
30-44-----	5,412	3,417	1,792	(*)	100.0	63.1	33.1	(*)
45+-----	11,092	7,619	2,878	594	100.0	68.7	25.9	5.4
45-64-----	7,999	5,353	2,255	392	100.0	66.9	28.2	4.9
65+-----	3,092	2,266	623	(*)	100.0	73.3	20.1	(*)
<u>Extremities</u>								
All ages-----	13,610	7,366	5,596	648	100.0	54.1	41.1	4.8
Under 15-----	3,399	1,849	1,340	(*)	100.0	54.4	39.4	(*)
15-29-----	3,225	1,695	1,372	(*)	100.0	52.6	42.5	(*)
30-44-----	2,674	1,406	1,153	(*)	100.0	52.6	43.1	(*)
45+-----	4,312	2,415	1,731	(*)	100.0	56.0	40.1	(*)
45-64-----	3,191	1,731	1,370	(*)	100.0	54.2	42.9	(*)
65+-----	1,121	683	(*)	(*)	100.0	60.9	(*)	(*)
<u>All other areas of body</u>								
All ages-----	6,971	3,831	2,918	(*)	100.0	55.0	41.9	(*)
Under 15-----	1,369	844	484	(*)	100.0	61.7	35.4	(*)
15-29-----	1,464	932	481	(*)	100.0	63.7	32.9	(*)
30-44-----	1,631	832	794	(*)	100.0	51.0	48.7	(*)
45+-----	2,507	1,223	1,160	(*)	100.0	48.8	46.3	(*)
45-64-----	1,887	966	829	(*)	100.0	51.2	43.9	(*)
65+-----	620	(*)	(*)	(*)	100.0	(*)	(*)	(*)



Table 9. Number and percent distribution of chest X-ray visits, by place of X-ray, according to selected characteristics: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Characteristic	Place of X-ray							
	Total chest X-ray visits	Hospital	Doctor's office	Other and unknown	Total chest X-ray visits	Hospital	Doctor's office	Other and unknown
	Number of chest X-ray visits in thousands				Percent distribution			
Total chest X-ray visits-----	51,084	20,955	10,499	19,631	100.0	41.0	20.6	38.4
<u>Age</u>								
Under 15-----	3,912	2,134	962	816	100.0	54.6	24.6	20.9
15-29-----	12,576	5,080	1,746	5,750	100.0	40.4	13.9	45.7
30-44-----	14,013	4,828	3,014	6,170	100.0	34.5	21.5	44.0
45+-----	20,582	8,912	4,776	6,894	100.0	43.3	23.2	33.5
45-64-----	15,461	6,460	3,442	5,558	100.0	41.8	22.3	35.8
65+-----	5,121	2,451	1,334	1,336	100.0	47.9	26.0	26.1
<u>Sex</u>								
Male-----	25,868	10,081	5,485	10,302	100.0	39.0	21.2	39.8
Female-----	25,216	10,873	5,014	9,328	100.0	43.1	19.9	37.0
<u>Residence</u>								
Total urban-----	34,802	14,621	7,495	12,686	100.0	42.0	21.5	36.5
Inside urbanized areas-----	27,028	11,278	6,016	9,734	100.0	41.7	22.3	36.0
Other urban places-----	7,774	3,342	1,479	2,952	100.0	43.0	19.0	38.0
Rural nonfarm-----	12,638	5,113	2,331	5,194	100.0	40.5	18.4	41.1
Rural farm-----	3,644	1,220	673	1,750	100.0	33.5	18.5	48.0
<u>Region</u>								
Northeast-----	11,836	5,298	2,679	3,860	100.0	44.8	22.6	32.6
North Central-----	15,361	6,294	2,508	6,559	100.0	41.0	16.3	42.7
South-----	15,101	5,985	2,959	6,158	100.0	39.6	19.6	40.8
West-----	8,785	3,378	2,354	3,054	100.0	38.5	26.8	34.8
<u>Geographic division</u>								
New England States-----	2,333	1,385	(*)	640	100.0	59.4	(*)	27.4
Middle Atlantic States-----	9,503	3,913	2,370	3,219	100.0	41.2	24.9	33.9
East North Central States-----	11,180	4,670	1,394	5,115	100.0	41.8	12.5	45.8
West North Central States-----	4,182	1,624	1,114	1,444	100.0	38.8	26.6	34.5
South Atlantic States-----	7,829	2,806	1,407	3,616	100.0	35.8	18.0	46.2
East South Central States-----	2,752	913	469	1,371	100.0	33.2	17.0	49.8
West South Central States-----	4,520	2,266	1,083	1,171	100.0	50.1	24.0	25.9
Mountain States-----	1,838	952	451	435	100.0	51.8	24.5	23.7
Pacific States-----	6,947	2,425	1,903	2,620	100.0	34.9	27.4	37.7
<u>Family income</u>								
Under \$2,000-----	8,434	4,404	1,139	2,891	100.0	52.2	13.5	34.3
\$2,000-3,999-----	9,966	4,346	1,649	3,971	100.0	43.6	16.5	39.8
\$4,000-6,999-----	15,890	6,142	3,160	6,588	100.0	38.7	19.9	41.5
\$7,000+-----	14,731	5,228	4,081	5,421	100.0	35.5	27.7	36.8
Unknown-----	2,063	834	470	759	100.0	40.4	22.8	36.8
<u>Education of family head</u>								
Under 9 years-----	16,872	6,969	3,028	6,875	100.0	41.3	17.9	40.7
9-12 years-----	22,806	9,613	4,716	8,477	100.0	42.2	20.7	37.2
College-----	10,377	3,890	2,562	3,925	100.0	37.5	24.7	37.8
Unknown-----	1,029	483	(*)	(*)	100.0	46.9	(*)	(*)

Table 10. Number and percent distribution of areas of body (except chest) x-rayed, by place of X-ray, according to selected characteristics: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Characteristic	Place of X-ray							
	Total areas of body (except chest) x-rayed	Hospital	Doctor's office	Other and unknown	Total areas of body (except chest) x-rayed	Hospital	Doctor's office	Other and unknown
Number of areas of body in thousands					Percent distribution			
Total areas of body (except chest)-----	41,669	25,428	14,357	1,883	100.0	61.0	34.5	4.5
<u>Age</u>								
Under 15-----	5,964	3,505	2,159	(*)	100.0	58.8	36.2	(*)
15-29-----	8,078	5,012	2,690	(*)	100.0	62.0	33.3	(*)
30-44-----	9,716	5,654	3,739	(*)	100.0	58.2	38.5	(*)
45+-----	17,911	11,257	5,769	885	100.0	62.8	32.2	4.9
45-64-----	13,078	8,050	4,454	574	100.0	61.6	34.1	4.4
65+-----	4,833	3,207	1,315	(*)	100.0	66.4	27.2	(*)
<u>Sex</u>								
Male-----	20,349	12,352	7,088	909	100.0	60.7	34.8	4.5
Female-----	21,320	13,077	7,269	974	100.0	61.3	34.1	4.6
<u>Residence</u>								
Total urban-----	26,789	16,130	9,305	1,354	100.0	60.2	34.7	5.1
Inside urbanized areas-----	20,029	12,104	6,941	983	100.0	60.4	34.7	4.9
Other urban places-----	6,761	4,026	2,364	(*)	100.0	59.5	35.0	(*)
Rural nonfarm-----	11,524	7,190	3,903	431	100.0	62.4	33.9	3.7
Rural farm-----	3,355	2,108	1,149	(*)	100.0	62.8	34.2	(*)
<u>Region</u>								
Northeast-----	10,228	6,881	3,091	(*)	100.0	67.3	30.2	(*)
North Central-----	10,161	6,317	3,400	444	100.0	62.2	33.5	4.4
South-----	12,388	7,883	3,892	613	100.0	63.6	31.4	4.9
West-----	8,892	4,347	3,974	570	100.0	48.9	44.7	6.4
<u>Geographic division</u>								
New England States-----	2,342	1,645	615	(*)	100.0	70.2	26.3	(*)
Middle Atlantic States-----	7,885	5,236	2,476	(*)	100.0	66.4	31.4	(*)
East North Central States-----	7,045	4,701	2,125	(*)	100.0	66.7	30.2	(*)
West North Central States-----	3,115	1,616	1,275	(*)	100.0	51.9	40.9	(*)
South Atlantic States-----	5,686	3,664	1,788	(*)	100.0	64.4	31.4	(*)
East South Central States-----	2,342	1,465	770	(*)	100.0	62.6	32.9	(*)
West South Central States-----	4,360	2,755	1,334	(*)	100.0	63.2	30.6	(*)
Mountain States-----	1,879	974	790	(*)	100.0	51.8	42.0	(*)
Pacific States-----	7,013	3,373	3,184	455	100.0	48.1	45.4	6.5
<u>Family income</u>								
Under \$2,000-----	5,868	4,168	1,454	(*)	100.0	71.0	24.8	(*)
\$2,000-3,999-----	7,583	5,218	2,096	(*)	100.0	68.8	27.6	(*)
\$4,000-6,999-----	13,790	8,265	4,950	575	100.0	59.9	35.9	4.2
\$7,000+-----	12,268	6,391	5,179	699	100.0	52.1	42.2	5.7
Unknown-----	2,159	1,387	679	(*)	100.0	64.2	31.4	(*)
<u>Education of family head</u>								
Under 9 years-----	13,826	9,509	3,820	497	100.0	68.8	27.6	3.6
9-12 years-----	17,902	10,719	6,468	715	100.0	59.9	36.1	4.0
College-----	8,811	4,361	3,819	631	100.0	49.5	43.3	7.2
Unknown-----	1,130	840	(*)	(*)	100.0	74.3	(*)	(*)

Table 11. Number of dental X-ray visits and number of dental X-ray visits per 100 persons per year, by race, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Race					
	All races	White	Nonwhite	All races	White	Nonwhite
<u>Both sexes</u>	Number of dental X-ray visits in thousands			Number of dental X-ray visits per 100 persons per year		
All ages-----	48,768	45,588	3,180	27.4	29.0	15.5
Under 15-----	12,230	11,178	1,052	21.4	22.8	13.0
15-29-----	13,881	12,958	923	40.8	43.6	21.7
30-44-----	12,351	11,622	729	35.3	37.1	19.8
45+-----	10,305	9,829	477	19.9	20.8	10.6
45-64-----	8,686	8,249	437	23.9	25.1	12.9
65+-----	1,619	1,580	(*)	10.4	11.0	(*)
<u>Male</u>						
All ages-----	20,661	19,159	1,502	23.9	25.0	15.2
Under 15-----	5,978	5,410	567	20.5	21.6	13.9
15-29-----	5,086	4,762	(*)	31.4	33.6	(*)
30-44-----	5,149	4,820	(*)	30.7	31.9	(*)
45+-----	4,449	4,167	(*)	18.2	18.7	(*)
45-64-----	3,717	3,439	(*)	21.3	21.7	(*)
65+-----	731	728	(*)	10.5	11.3	(*)
<u>Female</u>						
All ages-----	28,106	26,428	1,678	30.7	32.7	15.8
Under 15-----	6,253	5,768	485	22.3	24.1	12.0
15-29-----	8,795	8,197	599	49.4	52.7	26.6
30-44-----	7,202	6,802	400	39.5	41.9	19.9
45+-----	5,857	5,662	(*)	21.4	22.6	(*)
45-64-----	4,969	4,809	(*)	26.4	28.2	(*)
65+-----	888	852	(*)	10.4	10.7	(*)

Table 12. Number of dental X-ray visits and number of dental X-ray visits per 100 persons per year, by residence, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Residence				
	All areas	Urban			Rural
		Total	Inside urbanized areas	Other urban places	
<u>Both sexes</u>	Number of dental X-ray visits in thousands				
All ages-----	48,768	33,379	26,776	6,603	15,389
Under 15-----	12,230	7,794	6,275	1,519	4,436
15-29-----	13,881	10,028	7,808	2,220	3,854
30-44-----	12,351	7,961	6,532	1,429	4,390
45+-----	10,305	7,597	6,161	1,435	2,709
45-64-----	8,686	6,318	5,169	1,149	2,368
65+-----	1,619	1,279	993	(*)	(*)
<u>Male</u>					
All ages-----	20,661	14,029	11,132	2,898	6,632
Under 15-----	5,978	3,824	3,112	712	2,153
15-29-----	5,086	3,725	2,720	1,006	1,361
30-44-----	5,149	3,312	2,701	612	1,837
45+-----	4,449	3,167	2,599	568	1,281
45-64-----	3,717	2,666	2,190	476	1,051
65+-----	731	501	409	(*)	(*)
<u>Female</u>					
All ages-----	28,106	19,350	15,645	3,705	8,756
Under 15-----	6,253	3,970	3,163	807	2,283
15-29-----	8,795	6,302	5,088	1,214	2,493
30-44-----	7,202	4,649	3,831	818	2,553
45+-----	5,857	4,429	3,562	867	1,427
45-64-----	4,969	3,652	2,979	673	1,317
65+-----	888	777	584	(*)	(*)
<u>Both sexes</u>	Number of dental X-ray visits per 100 persons per year				
All ages-----	27.4	31.2	34.6	22.4	21.6
Under 15-----	21.4	24.5	27.6	16.6	17.5
15-29-----	40.8	48.3	52.7	37.3	29.1
30-44-----	35.3	38.1	41.8	27.0	31.2
45+-----	19.9	22.8	25.5	15.7	14.6
45-64-----	23.9	27.2	30.0	19.1	18.1
65+-----	10.4	12.7	14.2	(*)	(*)
<u>Male</u>					
All ages-----	23.9	27.5	30.2	20.5	18.6
Under 15-----	20.5	23.7	27.1	15.2	16.6
15-29-----	31.4	38.0	38.9	35.7	21.3
30-44-----	30.7	33.5	36.6	24.5	26.7
45+-----	18.2	21.0	23.7	13.8	13.7
45-64-----	21.3	24.7	27.4	17.1	15.7
65+-----	10.5	11.7	13.8	(*)	(*)
<u>Female</u>					
All ages-----	30.7	34.6	38.6	24.1	24.7
Under 15-----	22.3	25.3	28.1	18.2	18.5
15-29-----	49.4	57.5	64.9	38.8	36.5
30-44-----	39.5	42.1	46.4	29.3	35.5
45+-----	21.4	24.3	26.9	17.3	15.6
45-64-----	26.4	29.4	32.4	20.8	20.6
65+-----	10.4	13.4	14.5	(*)	(*)



Table 13. Number of dental X-ray visits and number of dental X-ray visits per 100 persons per year, by region, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Region				
	All regions	Northeast	North Central	South	West
<b>Both sexes</b>					
Number of dental X-ray visits in thousands					
All ages-----	48,768	15,141	11,915	10,241	11,471
Under 15-----	12,230	3,493	2,875	2,399	3,463
15-29-----	13,881	4,453	3,603	2,727	3,097
30-44-----	12,351	3,919	2,989	2,611	2,832
45+-----	10,305	3,276	2,448	2,503	2,078
45-64-----	8,686	2,766	2,103	2,044	1,774
65+-----	1,619	511	(*)	459	(*)
<b>Male</b>					
All ages-----	20,661	6,481	5,000	4,172	5,009
Under 15-----	5,978	1,810	1,433	1,053	1,681
15-29-----	5,086	1,557	1,269	1,046	1,213
30-44-----	5,149	1,605	1,375	1,004	1,165
45+-----	4,449	1,508	923	1,069	949
45-64-----	3,717	1,279	752	851	836
65+-----	731	(*)	(*)	(*)	(*)
<b>Female</b>					
All ages-----	28,106	8,661	6,915	6,069	6,462
Under 15-----	6,253	1,682	1,442	1,346	1,782
15-29-----	8,795	2,896	2,334	1,681	1,884
30-44-----	7,202	2,314	1,614	1,607	1,667
45+-----	5,857	1,768	1,525	1,434	1,129
45-64-----	4,969	1,486	1,351	1,193	938
65+-----	888	(*)	(*)	(*)	(*)
<b>Both sexes</b>					
Number of dental X-ray visits per 100 persons per year					
All ages-----	27.4	32.7	24.0	18.9	41.3
Under 15-----	21.4	25.4	17.9	13.2	37.5
15-29-----	40.8	52.9	38.7	24.9	58.3
30-44-----	35.3	40.0	31.2	26.0	50.9
45+-----	19.9	22.9	16.5	16.6	27.2
45-64-----	23.9	27.8	20.9	19.0	32.1
65+-----	10.4	11.7	(*)	10.7	(*)
<b>Male</b>					
All ages-----	23.9	29.1	20.3	15.9	37.2
Under 15-----	20.5	25.6	17.4	11.4	36.3
15-29-----	31.4	39.2	27.7	20.1	49.5
30-44-----	30.7	34.5	29.0	21.3	43.8
45+-----	18.2	22.9	13.0	15.1	25.6
45-64-----	21.3	27.3	15.3	16.5	30.5
65+-----	10.5	(*)	(*)	(*)	(*)
<b>Female</b>					
All ages-----	30.7	36.1	27.5	21.7	45.1
Under 15-----	22.3	25.1	18.5	15.1	38.7
15-29-----	49.4	65.2	49.3	29.2	65.8
30-44-----	39.5	44.9	33.3	30.2	57.4
45+-----	21.4	23.0	19.7	17.9	28.6
45-64-----	26.4	28.3	26.1	21.2	33.8
65+-----	10.4	(*)	(*)	(*)	(*)

Table 14. Number of dental X-ray visits and number of dental X-ray visits per 100 persons per year, by family income, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Family income					
	All incomes	Under \$2,000	\$2,000-3,999	\$4,000-6,999	\$7,000+	Unknown
<b>Number of dental X-ray visits in thousands</b>						
<u>Both sexes</u>						
All ages-----	48,768	3,067	5,984	15,919	21,744	2,054
Under 15-----	12,230	438	1,346	4,298	5,678	470
15-29-----	13,881	1,340	2,182	4,760	5,021	579
30-44-----	12,351	(*)	1,238	4,314	6,080	402
45+-----	10,305	972	1,218	2,546	4,966	604
45-64-----	8,686	561	931	2,209	4,493	493
65+-----	1,619	411	(*)	(*)	473	(*)
<u>Male</u>						
All ages-----	20,661	1,240	2,267	6,794	9,578	782
Under 15-----	5,978	(*)	691	2,074	2,741	(*)
15-29-----	5,086	535	688	1,639	2,077	(*)
30-44-----	5,149	(*)	472	1,924	2,460	(*)
45+-----	4,449	(*)	416	1,157	2,300	(*)
45-64-----	3,717	(*)	(*)	982	2,090	(*)
65+-----	731	(*)	(*)	(*)	(*)	(*)
<u>Female</u>						
All ages-----	28,106	1,827	3,717	9,125	12,166	1,272
Under 15-----	6,253	(*)	655	2,224	2,937	(*)
15-29-----	8,795	805	1,494	3,121	2,944	432
30-44-----	7,202	(*)	766	2,390	3,620	(*)
45+-----	5,857	583	802	1,389	2,666	417
45-64-----	4,969	(*)	603	1,227	2,403	(*)
65+-----	888	(*)	(*)	(*)	(*)	(*)
<b>Number of dental X-ray visits per 100 persons per year</b>						
<u>Both sexes</u>						
All ages-----	27.4	12.9	17.4	25.7	45.3	20.7
Under 15-----	21.4	7.4	12.2	19.1	37.6	18.0
15-29-----	40.8	30.5	30.4	39.2	59.1	32.0
30-44-----	35.3	(*)	22.9	31.7	52.7	22.9
45+-----	19.9	9.0	11.3	18.7	38.7	16.0
45-64-----	23.9	10.9	13.3	20.2	41.7	19.8
65+-----	10.4	7.2	(*)	(*)	22.8	(*)
<u>Male</u>						
All ages-----	23.9	11.5	13.8	22.1	40.1	16.5
Under 15-----	20.5	(*)	12.4	18.0	35.9	(*)
15-29-----	31.4	25.1	20.4	28.9	50.1	(*)
30-44-----	30.7	(*)	18.8	28.7	44.3	(*)
45+-----	18.2	(*)	8.4	16.9	35.2	(*)
45-64-----	21.3	(*)	(*)	17.6	37.2	(*)
65+-----	10.5	(*)	(*)	(*)	(*)	(*)
<u>Female</u>						
All ages-----	30.7	14.1	20.7	29.3	50.5	24.5
Under 15-----	22.3	(*)	12.0	20.1	39.4	(*)
15-29-----	49.4	35.7	39.4	48.3	67.7	45.5
30-44-----	39.5	(*)	26.4	34.6	60.5	(*)
45+-----	21.4	9.1	13.7	20.6	42.3	19.9
45-64-----	26.4	(*)	15.4	23.0	46.6	(*)
65+-----	10.4	(*)	(*)	(*)	(*)	(*)

Table 15. Number of dental X-ray visits and number of dental X-ray visits per 100 persons per year, by education of family head, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Education of family head				
	All educational groups	Under 9 years	9-12 years	College	Unknown
<b>Both sexes</b>					
Number of dental X-ray visits in thousands					
All ages-----	48,768	8,823	23,433	15,676	836
Under 15-----	12,230	1,932	6,414	3,721	(*)
15-29-----	13,881	2,430	6,809	4,411	(*)
30-44-----	12,351	1,618	6,023	4,511	(*)
45+-----	10,305	2,845	4,186	3,033	(*)
45-64-----	8,686	2,227	3,696	2,575	(*)
65+-----	1,619	618	491	458	(*)
<b>Male</b>					
All ages-----	20,661	3,938	9,485	6,928	(*)
Under 15-----	5,978	992	3,118	1,791	(*)
15-29-----	5,086	895	2,415	1,698	(*)
30-44-----	5,149	751	2,325	2,006	(*)
45+-----	4,449	1,300	1,627	1,433	(*)
45-64-----	3,717	980	1,440	1,239	(*)
65+-----	731	(*)	(*)	(*)	(*)
<b>Female</b>					
All ages-----	28,106	4,886	13,948	8,748	525
Under 15-----	6,253	940	3,297	1,930	(*)
15-29-----	8,795	1,534	4,394	2,713	(*)
30-44-----	7,202	867	3,698	2,505	(*)
45+-----	5,857	1,545	2,560	1,600	(*)
45-64-----	4,969	1,247	2,256	1,336	(*)
65+-----	888	(*)	(*)	(*)	(*)
<b>Both sexes</b>					
Number of dental X-ray visits per 100 persons per year					
All ages-----	27.4	14.5	29.5	47.8	17.3
Under 15-----	21.4	11.7	22.8	32.9	(*)
15-29-----	40.8	24.3	41.1	66.9	(*)
30-44-----	35.3	17.3	34.5	60.5	(*)
45+-----	19.9	11.4	24.1	40.7	(*)
45-64-----	23.9	13.8	28.0	45.2	(*)
65+-----	10.4	7.0	11.9	26.3	(*)
<b>Male</b>					
All ages-----	23.9	13.2	24.7	43.3	(*)
Under 15-----	20.5	11.8	21.6	31.5	(*)
15-29-----	31.4	17.7	32.0	53.5	(*)
30-44-----	30.7	17.3	27.8	54.0	(*)
45+-----	18.2	10.8	20.3	41.8	(*)
45-64-----	21.3	12.7	22.4	45.3	(*)
65+-----	10.5	(*)	(*)	(*)	(*)
<b>Female</b>					
All ages-----	30.7	15.8	33.9	52.1	20.9
Under 15-----	22.3	11.6	24.1	34.4	(*)
15-29-----	49.4	31.1	48.8	79.4	(*)
30-44-----	39.5	17.4	40.6	67.0	(*)
45+-----	21.4	11.9	27.5	39.9	(*)
45-64-----	26.4	14.8	33.3	45.0	(*)
65+-----	10.4	(*)	(*)	(*)	(*)

Table 16. Population used in obtaining rates shown in this publication, by race, residence, sex, and age:  
United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Total population	Race		Residence					
		White	Nonwhite	Urban			Rural		
				Total	Inside urbanized areas	Other urban places	Total	Nonfarm	Farm
Population in thousands									
Both sexes									
All ages-----	177,984	157,446	20,538	106,839	77,368	29,471	71,145	50,155	20,989
Under 15-----	57,186	49,069	8,117	31,836	22,708	9,128	25,350	18,153	7,196
15-29-----	33,993	29,742	4,252	20,771	14,825	5,946	13,222	9,333	3,889
30-44-----	34,999	31,314	3,685	20,922	15,637	5,285	14,076	10,604	3,472
45+-----	51,805	47,322	4,484	33,309	24,197	9,112	18,496	12,064	6,432
45-64-----	36,298	32,905	3,393	23,220	17,205	6,016	13,077	8,568	4,509
65+-----	15,507	14,417	1,090	10,089	6,992	3,096	5,419	3,496	1,923
Male									
All ages-----	86,572	76,677	9,895	50,928	36,817	14,111	35,644	24,732	10,912
Under 15-----	29,166	25,086	4,080	16,158	11,469	4,689	13,008	9,222	3,786
15-29-----	16,191	14,186	2,004	9,805	6,988	2,816	6,386	4,352	2,034
30-44-----	16,775	15,096	1,679	9,883	7,386	2,496	6,893	5,193	1,699
45+-----	24,441	22,309	2,132	15,083	10,974	4,109	9,358	5,965	3,393
45-64-----	17,489	15,868	1,621	10,789	8,007	2,782	6,700	4,341	2,359
65+-----	6,952	6,441	511	4,294	2,967	1,327	2,658	1,624	1,034
Female									
All ages-----	91,412	80,768	10,643	55,911	40,551	15,360	35,501	25,423	10,077
Under 15-----	28,020	23,983	4,037	15,678	11,240	4,439	12,342	8,932	3,410
15-29-----	17,803	15,555	2,248	10,966	7,837	3,129	6,836	4,982	1,855
30-44-----	18,224	16,217	2,007	11,040	8,251	2,789	7,184	5,411	1,773
45+-----	27,365	25,013	2,352	18,226	13,223	5,003	9,138	6,099	3,039
45-64-----	18,809	17,037	1,773	12,431	9,198	3,234	6,378	4,227	2,150
65+-----	8,555	7,976	579	5,795	4,026	1,769	2,761	1,872	889

NOTE: For official population estimates for more general use, see Bureau of the Census reports on the civilian population of the United States, in Current Population Reports: Series P-20, P-25, and P-80.



Table 17. Population used in obtaining rates shown in this publication, by region, sex, and age:  
United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Region				
	All regions	Northeast	North Central	South	West
<u>Both sexes</u>	Population in thousands				
All ages-----	177,984	46,269	49,743	54,208	27,763
Under 15-----	57,186	13,757	16,034	18,157	9,238
15-29-----	33,993	8,416	9,309	10,955	5,314
30-44-----	34,999	9,800	9,588	10,048	5,563
45+-----	51,805	14,296	14,813	15,048	7,649
45-64-----	36,298	9,934	10,084	10,761	5,518
65+-----	15,507	4,362	4,729	4,286	2,131
<u>Male</u>					
All ages-----	86,572	22,277	24,641	26,206	13,448
Under 15-----	29,166	7,058	8,242	9,229	4,637
15-29-----	16,191	3,972	4,573	5,196	2,450
30-44-----	16,775	4,651	4,740	4,724	2,661
45+-----	24,441	6,597	7,086	7,058	3,701
45-64-----	17,489	4,683	4,917	5,146	2,742
65+-----	6,952	1,915	2,168	1,911	958
<u>Female</u>					
All ages-----	91,412	23,991	25,102	28,002	14,316
Under 15-----	28,020	6,700	7,792	8,928	4,601
15-29-----	17,803	4,444	4,735	5,760	2,864
30-44-----	18,224	5,149	4,848	5,324	2,903
45+-----	27,365	7,699	7,728	7,990	3,948
45-64-----	18,809	5,252	5,167	5,615	2,776
65+-----	8,555	2,447	2,561	2,375	1,173

NOTE: For official population estimates for more general use, see Bureau of the Census reports on the civilian population of the United States, in Current Population Reports: Series P-20, P-25, and P-60.

Table 18. Population used in obtaining rates shown in this publication, by family income, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Family income					
	All incomes	Under \$2,000	\$2,000-3,999	\$4,000-6,999	\$7,000+	Unknown
<b>Both sexes</b>						
	Population in thousands					
All ages-----	177,984	23,814	34,390	61,864	47,973	9,943
Under 15-----	57,186	5,915	11,007	22,560	15,098	2,606
15-29-----	33,993	4,389	7,168	12,131	8,496	1,810
30-44-----	34,999	2,699	5,413	13,595	11,534	1,758
45+-----	51,805	10,811	10,803	13,579	12,844	3,768
45-64-----	36,298	5,130	6,987	10,925	10,769	2,486
65+-----	15,507	5,681	3,815	2,654	2,075	1,282
<b>Male</b>						
All ages-----	86,572	10,816	16,404	30,717	23,884	4,751
Under 15-----	29,166	3,072	5,568	11,501	7,643	1,382
15-29-----	16,191	2,135	3,380	5,668	4,148	860
30-44-----	16,775	1,185	2,506	6,697	5,554	833
45+-----	24,441	4,424	4,951	6,851	6,540	1,675
45-64-----	17,489	2,063	3,065	5,585	5,617	1,158
65+-----	6,952	2,361	1,885	1,266	922	517
<b>Female</b>						
All ages-----	91,412	12,998	17,986	31,147	24,088	5,192
Under 15-----	28,020	2,843	5,439	11,060	7,455	1,224
15-29-----	17,803	2,254	3,788	6,462	4,348	950
30-44-----	18,224	1,514	2,907	6,898	5,981	925
45+-----	27,365	6,387	5,852	6,728	6,305	2,093
45-64-----	18,809	3,067	3,922	5,340	5,152	1,328
65+-----	8,555	3,320	1,930	1,388	1,153	765

NOTE: For official population estimates for more general use, see Bureau of the Census reports on the civilian population of the United States, in Current Population Reports: Series P-20, P-25, and P-60.

Table 19. Population used in obtaining rates shown in this publication, by education of family head, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Education of family head				
	All educational groups	Under 9 years	9-12 years	College	Unknown
<b>Both sexes</b>					
Population in thousands					
All ages-----	177,984	60,849	79,507	32,785	4,843
Under 15-----	57,186	16,503	28,140	11,297	1,246
15-29-----	33,993	9,987	16,548	6,589	869
30-44-----	34,999	9,330	17,478	7,455	736
45+-----	51,805	25,029	17,341	7,444	1,992
45-64-----	36,298	16,159	13,210	5,702	1,226
65+-----	15,507	8,869	4,131	1,741	765
<b>Male</b>					
All ages-----	86,572	29,843	38,393	16,010	2,326
Under 15-----	29,166	8,427	14,445	5,691	602
15-29-----	16,191	5,054	7,552	3,173	411
30-44-----	16,775	4,344	8,372	3,715	(*)
45+-----	24,441	12,018	8,023	3,430	970
45-64-----	17,489	7,742	6,427	2,735	584
65+-----	6,952	4,276	1,596	695	(*)
<b>Female</b>					
All ages-----	91,412	31,006	41,115	16,775	2,516
Under 15-----	28,020	8,076	13,694	5,605	645
15-29-----	17,803	4,933	8,996	3,416	458
30-44-----	18,224	4,985	9,106	3,740	392
45+-----	27,365	13,011	9,317	4,014	1,022
45-64-----	18,809	8,417	6,783	2,967	642
65+-----	8,555	4,594	2,535	1,047	(*)

NOTE: For official population estimates for more general use, see Bureau of the Census reports on the civilian population of the United States, in Current Population Reports: Series P-20, P-25, and P-60.

Table 20. Population used in obtaining rates shown in this publication, by family income, education of family head, sex, and age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Sex and age	Family income and education of family head							
	Total	Under \$4,000			\$4,000+			Income or education unknown
		Under 9 years	9-12 years	College	Under 9 years	9-12 years	College	
Population in thousands								
<u>Both sexes</u>								
All ages-----	177,984	31,628	20,611	4,099	25,602	54,992	27,560	13,491
Under 15-----	57,186	8,593	6,972	870	7,022	20,052	10,132	3,546
15-29-----	33,993	4,640	5,096	1,453	4,718	10,698	4,935	2,454
30-44-----	34,999	4,046	3,271	566	4,735	13,410	6,671	2,300
45+-----	51,805	14,350	5,272	1,209	9,127	10,833	5,823	5,192
45-64-----	36,298	7,855	3,219	646	7,303	9,110	4,786	3,379
65+-----	15,507	6,495	2,054	563	1,824	1,722	1,037	1,813
<u>Male</u>								
All ages-----	86,572	15,095	9,313	1,924	13,002	27,210	13,559	6,467
Under 15-----	29,166	4,385	3,611	417	3,583	10,225	5,118	1,827
15-29-----	16,191	2,272	2,244	819	2,453	4,959	2,272	1,172
30-44-----	16,775	1,858	1,447	(*)	2,231	6,548	3,324	1,088
45+-----	24,441	6,580	2,011	409	4,735	5,479	2,846	2,380
45-64-----	17,489	3,496	1,233	(*)	3,766	4,789	2,400	1,591
65+-----	6,952	3,084	778	(*)	970	691	446	789
<u>Female</u>								
All ages-----	91,412	16,533	11,298	2,174	12,600	27,782	14,001	7,024
Under 15-----	28,020	4,208	3,360	453	3,439	9,828	5,014	1,719
15-29-----	17,803	2,368	2,852	634	2,265	5,739	2,663	1,282
30-44-----	18,224	2,187	1,824	(*)	2,504	6,862	3,348	1,212
45+-----	27,365	7,770	3,261	800	4,392	5,353	2,977	2,812
45-64-----	18,809	4,358	1,986	432	3,538	4,321	2,386	1,788
65+-----	8,555	3,411	1,276	(*)	854	1,032	591	1,024

NOTE: For official population estimates for more general use, see Bureau of the Census reports on the civilian population of the United States, in Current Population Reports: Series P-20, P-25, and P-60.

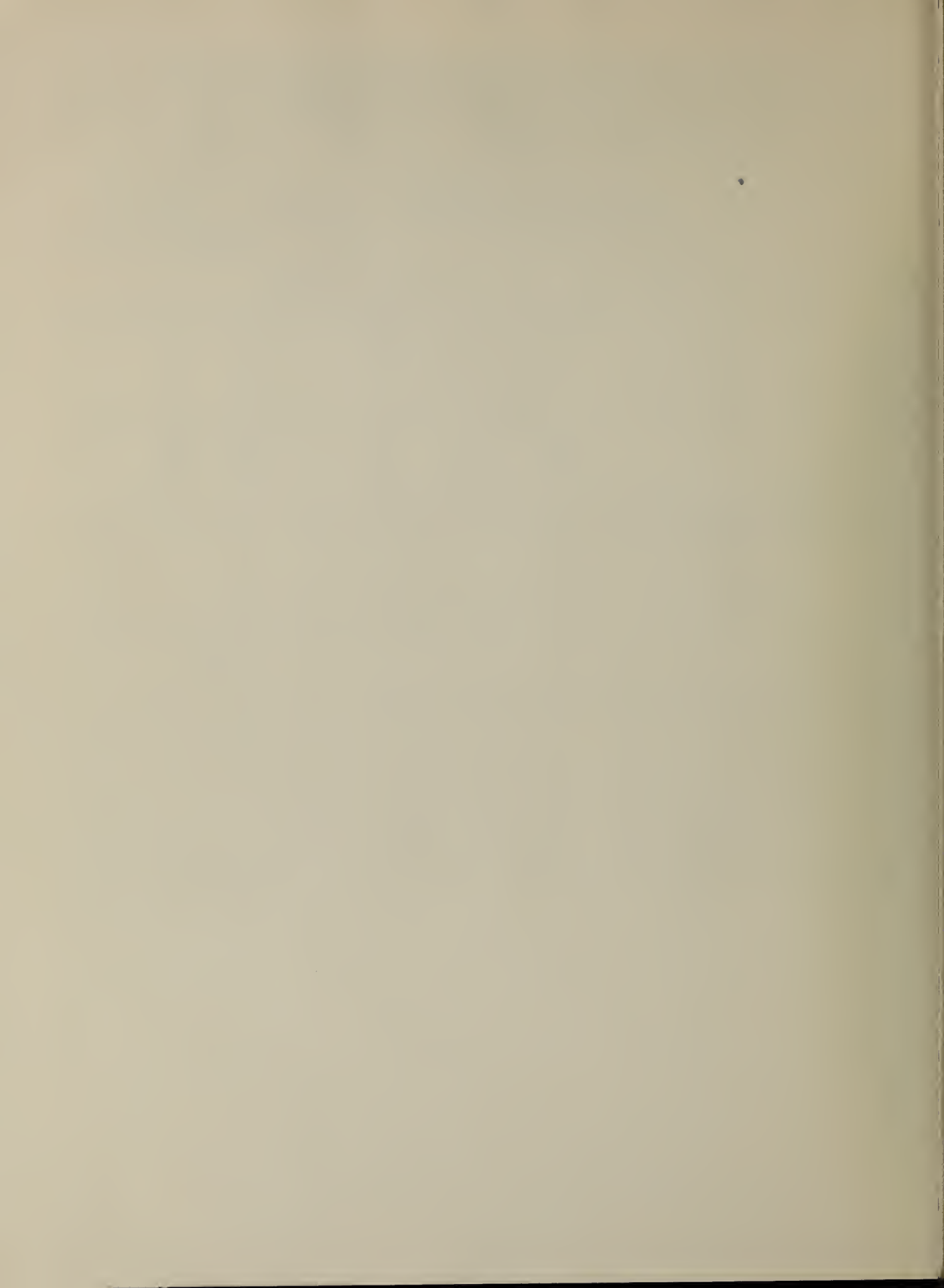


Table 21. Population of racial groups with known family income and number and percent of total with family income under \$4,000, by age: United States, July 1960-June 1961

[Data are based on household interviews of the civilian, noninstitutional population. The survey design, general qualifications, and information on the reliability of the estimates are given in Appendix I. Definitions of terms are given in Appendix II]

Age	White			Nonwhite		
	Population with known family income	Family income under \$4,000		Population with known family income	Family income under \$4,000	
		Number	Percent		Number	Percent
	Population in thousands					
All ages-----	148,652	44,269	29.8	19,389	13,935	71.9
Under 15-----	46,863	11,206	23.9	7,716	5,716	74.1
15-29-----	28,207	8,737	31.0	3,976	2,820	70.9
30-44-----	29,754	5,913	19.9	3,486	2,198	63.1
45+-----	43,827	18,414	42.0	4,210	3,200	76.0
45-64-----	30,629	9,795	32.0	3,182	2,323	73.0
65+-----	13,197	8,618	65.3	1,028	878	85.4

NOTE: For official population estimates for more general use, see Bureau of the Census reports on the civilian population of the United States, in Current Population Reports: Series P-20, P-25, and P-60.



## APPENDIX I

### TECHNICAL NOTES ON METHODS

#### Background of This Report

This report on Volume of X-ray Visits is one of a series of statistical reports prepared by the National Health Survey. It is based on information collected in a continuing nationwide sample of households in the Health Interview Survey, a major aspect of the program.

The Health Interview Survey utilizes a questionnaire which, in addition to personal and demographic characteristics, obtains information on illnesses, injuries, chronic conditions and impairments, and other health topics. As data relating to each of these various broad topics are tabulated and analyzed, separate reports are issued which cover one or more of the specific topics. The present report is based on the consolidated sample for 52 weeks of interviewing during the period July 1960-June 1961.

The population covered by the sample for the Health Interview Survey is the civilian, noninstitutional population of the United States living at the time of the interview. The sample does not include members of the Armed Forces, U. S. nationals living in foreign countries, or crews of vessels.

#### Statistical Design of the Health Interview Survey

General plan.—The sampling plan of the survey follows a multistage probability design which permits a continuous sampling of the civilian, noninstitutional population of the United States. The first stage of this design consists of drawing a sample of 500 from the 1,900 geographically defined Primary Sampling Units (PSU's) into which the United States has been divided. A PSU is a county, a group of contiguous counties, or a Standard Metropolitan Statistical Area.

With no loss in general understanding, the remaining stages can be telescoped and treated in this discussion as an ultimate stage. Within PSU's then, ultimate stage units called segments are defined, also geographically, in such a manner that each segment contains an expected six households in the sample. Each week a random sample of about 120 segments is drawn. In the approximately 700 households in those segments, household members are interviewed concerning factors related to health.

Since the household members interviewed each week are a representative sample of the population, samples for successive weeks can be combined into larger samples. Thus, the design permits both continuous measurement of characteristics of high incidence or prevalence in the population, and through the larger consolidated samples, more detailed analysis of less common characteristics and smaller categories. The continuous collection has administrative and operational

advantages as well as technical assets, since it permits field work to be handled with an experienced, stable staff.

Sample size and geographic detail.—Over the 12-month period ending June 1961, the sample included approximately 125,000 persons from 38,000 households in 6,400 segments. The over-all sample was designed in such a fashion that tabulations can be provided for each of the major geographic regions and for urban and rural sectors of the United States.

Collection of data.—The field operations for the household survey are performed by the Bureau of the Census under specifications established by the Public Health Service. In accordance with these specifications the Bureau of the Census designs and selects the sample; conducts the field interviewing, acting as the collecting agent for the Public Health Service; and edits and codes the questionnaires. Tabulations are prepared by the Public Health Service using the Bureau of the Census electronic computers.

Estimating methods.—Each statistic produced by the survey—for example, the number of dental X-ray visits—is the result of two stages of ratio estimation. In the first of these, the factor is the ratio of the 1950 decennial population count to the 1950 estimated population in the U. S. National Health Survey's first-stage sample of PSU's. These factors are applied for some 50 color-residence classes.

Later, ratios of sample-produced estimates of the population to official Bureau of the Census figures for current population in about 60 age-sex-color classes are computed, and serve as second-stage factors for ratio estimating.

The effect of the ratio estimating process is to make the sample closely representative of the population by age, sex, color, and residence, thus reducing sampling variance.

As noted, each week's sample represents the population living during that week as well as characteristics of the population. Consolidation of samples over a time period, say a calendar quarter, produces estimates of average characteristics of the U. S. population for that calendar quarter.

For population statistics, such as the population used in obtaining rates of medical X-ray visits, figures for a specific calendar quarter are averages of estimates for all weeks of interviewing in that quarter. Similarly, population data for a year are averages of the four quarterly figures.

For statistics measuring the number of occurrences during a specified time period, such as the number of dental X-ray visits, a similar computational procedure is used, but the statistics have a different interpretation. For the X-ray visit items, the questionnaire asks for the respondent's experience over the three months prior to the week of interview. In such instances the es-



timated quarterly total for the statistic is obtained by averaging estimates for all weeks of interviewing in the quarter. The annual total is the sum of the four quarterly estimates. Thus, the experience of persons interviewed during a year—experience which actually occurred for each person in a 13-calendar-week period prior to the week of interview—is treated in analysis as though it measured the total of such experience occurring in the year. Such interpretation leads to no significant bias.

### General Qualifications

Nonresponse.—Data were adjusted for nonresponse by a procedure which imputes to persons in a household which was not interviewed the characteristics of persons in households in the same segment which were interviewed. The total noninterview rate was 5 percent; 1 percent was refusal, and the remainder was primarily due to the failure to find any eligible household respondent after repeated trials.

The interview process.—The statistics presented in this report are based on replies secured in interviews of persons in the sampled households. Each person 17 years and over, available at the time of interview, was interviewed individually. Proxy respondents within the household were employed for children and for adults not available at the time of the interview, provided the respondent was closely related to the person about whom information was being obtained.

There are limitations to the accuracy of diagnostic and other information collected in household interviews. For diagnostic information, the household respondent can, at best, pass on to the interviewer only the information the physician has given to the family. For conditions not medically attended, diagnostic information is often no more than a description of symptoms. However, other types of facts such as those concerning the circumstances and consequences of illness or injury and the resulting action taken or sought by the individual can be obtained more accurately from household members than from any other source, since only the persons concerned are in a position to report all of this type of information.

Rounding of numbers.—The original tabulations on which the data in this report are based show all estimates to the nearest whole unit. All consolidations were made from the original tabulations using the estimates to the nearest unit. In the final published tables the figures are rounded to the nearest thousand, although they are not necessarily accurate to that detail. Derived statistics such as rates and percent distributions are computed after the estimates on which they are based have been rounded to the nearest thousand.

Population figures.—Some of the published tables include population figures for specified categories. Except for certain over-all totals by age, sex, and color, which are adjusted to independent estimates, these figures are based on the sample of households in the U. S. National Health Survey. They are given primarily for the purpose of providing denominators for rate computation, and for this purpose are more appropriate for use with the accompanying measures of health characteristics than other population data that may be available. In some instances they will permit users to re-

combine published data into classes more suitable to their specific needs. With the exception of the over-all totals by age, sex, and color, mentioned above, the population figures may in some cases differ from corresponding figures (which are derived from different sources) published in reports of the Bureau of the Census. For population data for general use, see the official estimates presented in Bureau of the Census reports in the P-20, P-25, and P-60 series.

### Reliability of Estimates

Since the estimates are based on a sample, they will differ somewhat from the figures that would have been obtained if a complete census had been taken using the same schedules, instructions, and interviewing personnel and procedures. As in any survey, the results are also subject to measurement error.

The standard error is primarily a measure of sampling variability, that is, the variations that might occur by chance because only a sample of the population is surveyed. As calculated for this report, the standard error also reflects part of the variation which arises in the measurement process. It does not include estimates of any biases which might lie in the data. The chances are about 68 out of 100 that an estimate from the sample would differ from a complete census by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error and about 99 out of 100 that it would be less than  $2\frac{1}{2}$  times as large.

The relative standard error of an estimate is obtained by dividing the standard error of the estimate by the estimate itself, and is expressed as a percentage of the estimate. Included in this Appendix are charts from which the relative standard errors can be determined for estimates shown in the report. In order to derive relative errors which would be applicable to a wide variety of health statistics and which could be prepared at a moderate cost, a number of approximations were required. As a result, the charts provide an estimate of the approximate relative standard error rather than the precise error for any specific aggregate or percentage.

Three classes of statistics for the health survey are identified for purposes of estimating variances.

Narrow range.—This class consists of (1) statistics which estimate a population attribute, e.g., the number of persons in a particular income group, and (2) statistics for which the measure for a single individual for the period of reference is usually either 0 or 1, on occasion may take on the value 2, and very rarely, 3.

Medium range.—This class consists of other statistics for which the measure for a single individual for the period of reference will rarely lie outside the range 0 to 5.

Wide range.—This class consists of statistics for which the measure for a single individual for the period of reference frequently will range from 0 to a number in excess of 5, e.g., the number of days of restricted activity experienced during the year.

In addition to classifying variables according to whether they are narrow-, medium-, or wide-range, statistics in the survey are further defined as:

Type A.—Statistics on prevalence, and incidence data for which the period of reference in the questionnaire is 12 months.



Type B.—Incidence-type statistics for which the period of reference in the questionnaire is two weeks.

Type C.—Statistics on data, such as hospitalizations, for which the period of reference is six months.

Type D.—Statistics on data, such as X-ray visits, for which the period of reference in the questionnaire is three months.

Only the charts on sampling error applicable to data contained in this report are presented. Those shown are charts for aggregates based on four calendar quarters of data collection.

General rules for determining relative sampling errors.—The "guide" on page 40, together with the following rules, will enable the reader to determine approximate relative standard errors from the charts for estimates presented in this report.

Rule 1. Estimates of aggregates: Approximate relative standard errors of estimates of aggregates, such as the number of persons with a given characteristic, or the number of X-ray visits are obtained from appropriate curves on page 41. The number of persons in the total U. S. population or in an age-sex-color class of the total population is adjusted to official Bureau of the Census figures and is not subject to sampling error.

Rule 2. Estimates of percentages in a percent distribution: Relative standard errors of percentages in a percent distribution of a total are obtained from appropriate curves on page 42. For values which do not fall on one of the curves presented in the chart,

visual interpolation will provide a satisfactory approximation.

Rule 3. Estimates of rates where the numerator is a subclass of the denominator: (Not required for statistics presented in this report.)

Rule 4. Estimates of rates where the numerator is not a subclass of the denominator: This rule applies where a unit of the numerator often occurs more than once for any one unit in the denominator. For example, in the computation of the number of dental X-ray visits per 100 persons per year, several of the X-ray visits included in the numerator could be assigned to each 100 persons (one unit) in the denominator. Approximate relative standard errors for rates of this kind may be computed as follows:

- (a) Where the denominator is the total U. S. population, or includes all persons in one or more of the age-sex-color groups of the total population, the relative error of the rate is equivalent to the relative error of the numerator which can be obtained directly from the appropriate chart.
- (b) In other cases, obtain the relative standard error of the numerator and of the denominator from the appropriate curve. Square each of these relative errors, add the resulting values, and extract the square root of the sum. This procedure will result in an upper bound, and often will overstate the error.

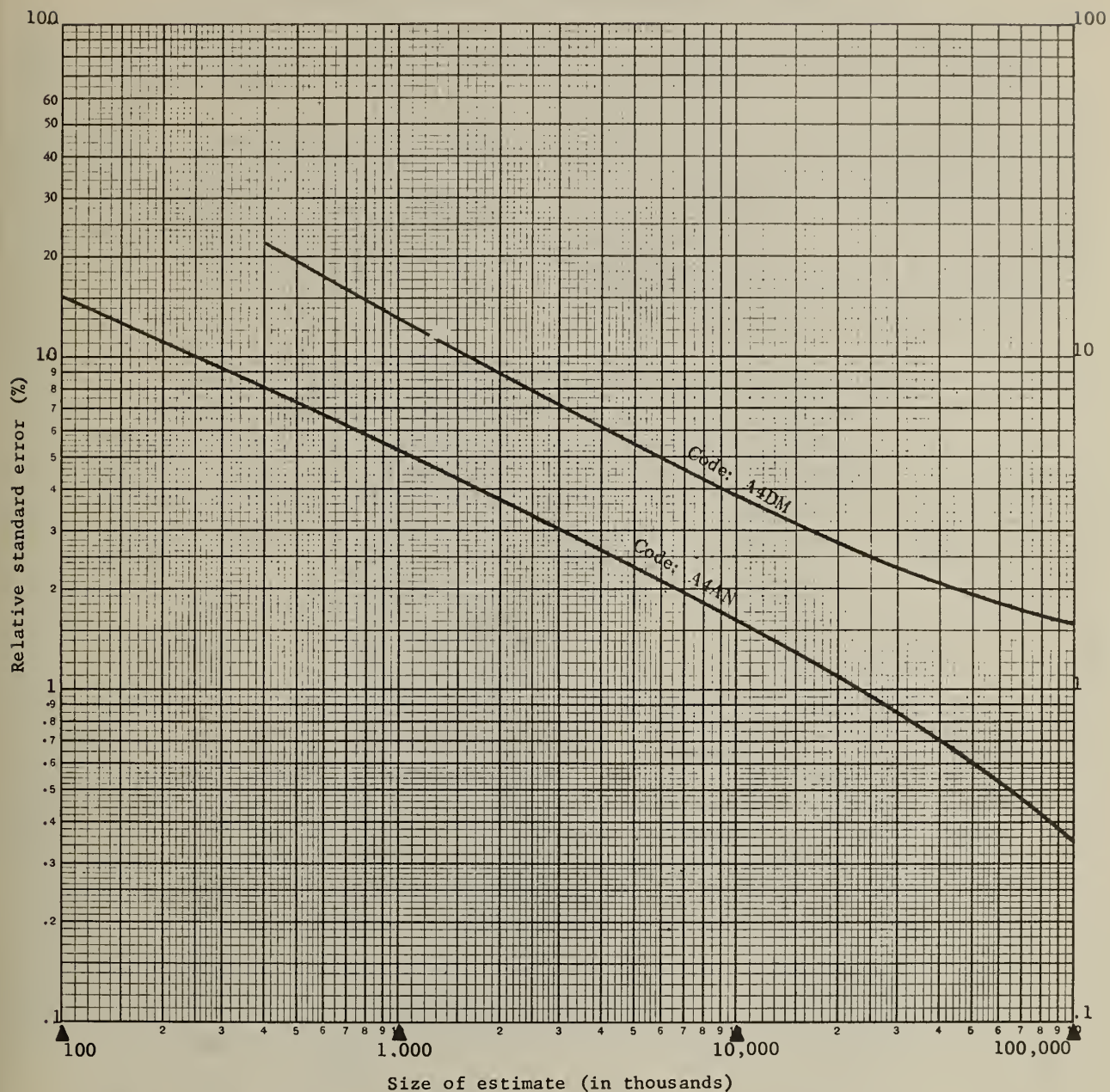
## Guide to Use of Relative Standard Error Charts

The code shown below identifies the appropriate curve to be used in estimating the relative standard error of the statistic described. The four components of each code describe the statistic as follows: (1)

A = aggregate, P = percentage; (2) the number of calendar quarters of data collection; (3) the type of the statistic as described on page 38; and (4) the range of the statistic as described on page 38.

Statistic	Use:		
	Rule	Code on	page
Number of: Persons, by residence, region, income or education-----	1	A4AN	41
Persons in the U. S. population, or total number of persons in any age-sex-color category-----	Not subject to sampling error		
X-ray visits-----	1	A4DM	41
Percentage distribution of: X-ray visits-----	2	P4DN-M	42
X-ray visits per 100 persons: In the total U. S. population or in any age-sex-color group of the total U. S. population-----	4(a)	A4DM	41
In any other population group-----	4(b)	{ Numer.: A4DM Denom.: A4AN	41

Relative standard errors for aggregates based on four quarters of data collection for type A, Narrow range, and type D, Medium range data

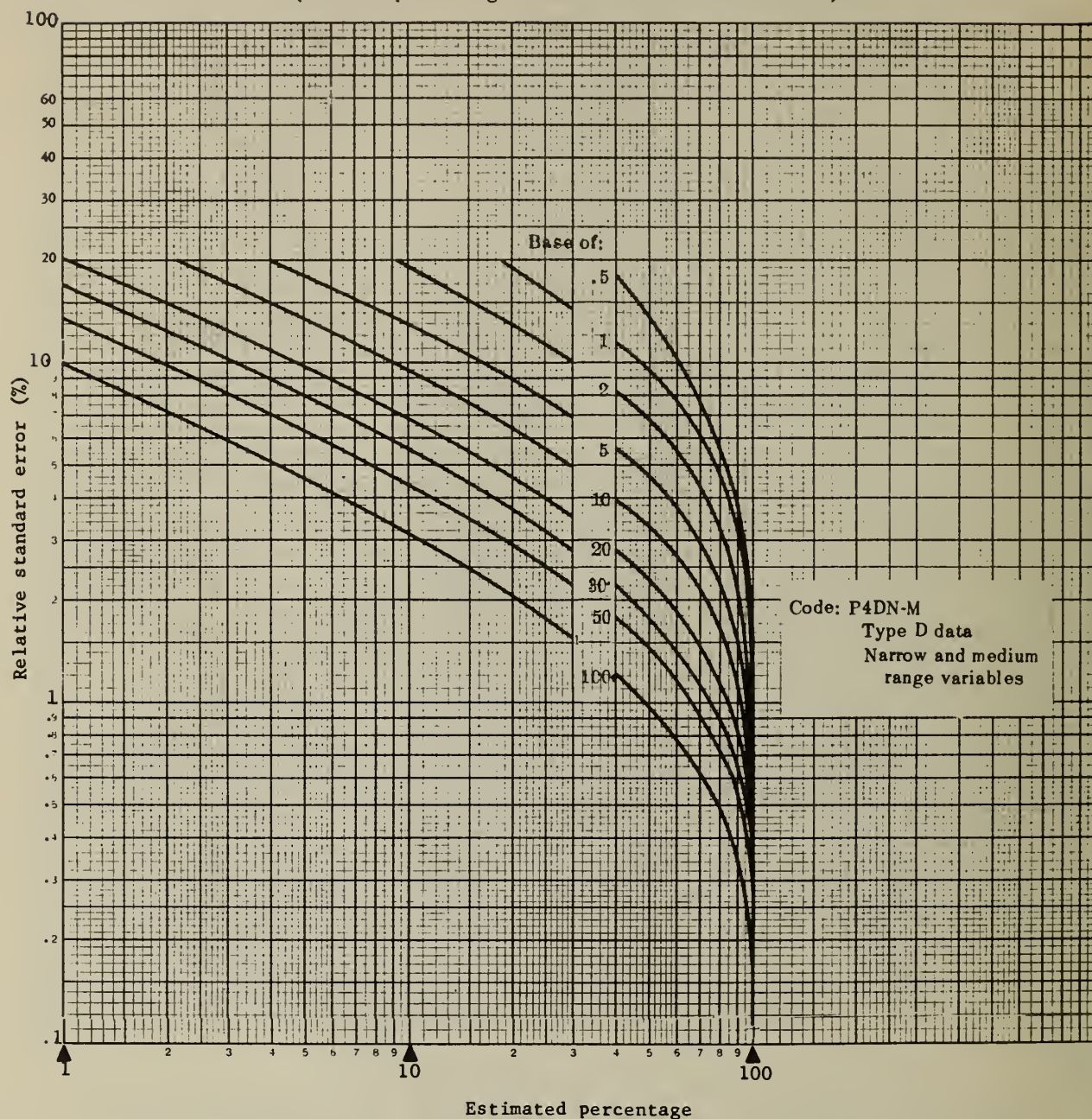


Example of use of chart: An aggregate of 1,000,000 (on scale at bottom of chart) for a Medium range type D statistic (code: A4DM) has a relative standard error of 13.2 percent, read from scale at left side of chart, or a standard error of 132,000 (13.2 percent of 1,000,000).



Relative standard errors for percentages based on four quarters of data collection  
for type D data, Narrow and Medium range

(Base of percentage shown on curves in millions)



Example of use of chart: An estimate of 20 percent (on scale at bottom of chart) based on an estimate of 10,000,000 has a relative standard error of 6.4 percent (read from the scale at the left side of the chart), the point at which the curve for a base of 10,000,000 intersects the vertical line for 20 percent. The standard error in percentage points is equal to 20 percent X 6.4 percent or 1.3 percentage points.



## APPENDIX II

### DEFINITIONS OF CERTAIN TERMS USED IN THIS REPORT

#### Terms Relating to X-rays

X-ray visit.—An X-ray visit is defined as a visit by a person to a physician's office, dentist's office, hospital, mobile X-ray unit, Public Health Department, etc., during the course of which X-ray equipment is used for diagnosis or treatment. X-ray includes X-ray film photography and X-ray emission for treatment and fluoroscopy, but excludes the use of radioisotopes. Only one visit is counted each time the person is x-rayed, regardless of the number of X-ray films exposed or the number of ports used. However, statistics are collected for each of the separate areas of the body toward which X-rays have been emitted (see below).

An X-ray visit is counted each time the person is x-rayed during the reference period. Hence, one person may be included in the statistics more than once. However, if several areas of the body are x-rayed during a single visit, only one X-ray visit is recorded. The term X-ray visit is used synonymously with "person-" event in other National Health Survey statistics, e.g., person-day.

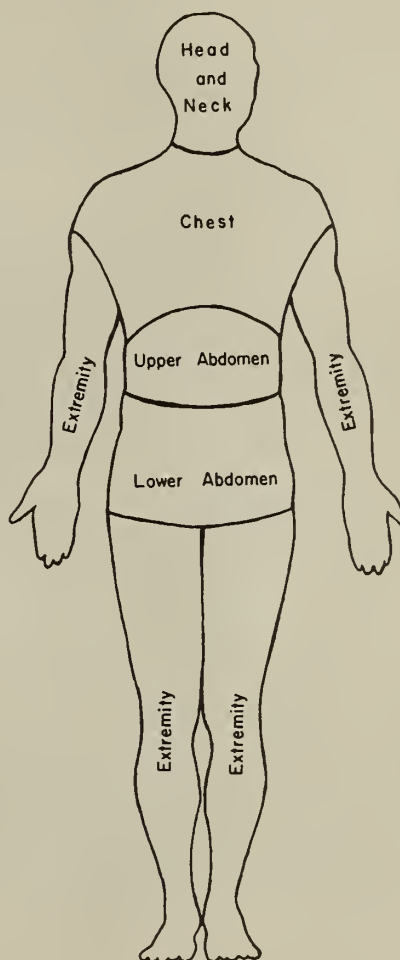
Statistics are prepared separately for dental X-ray visits and medical X-ray visits, i.e., other than dental. A dental X-ray visit is defined as an X-ray usually taken in a dentist's office for the primary purpose of studying the condition or formation of the teeth. If an X-ray of the teeth or jaw is taken in a hospital or clinic primarily for dental purposes, it is counted as a dental X-ray.

Place of X-ray.—The place of X-ray is a classification of the types of places at which an X-ray visit (other than dental) took place. Place of X-ray is not recorded for dental X-ray visits. The definitions of the three categories are as follows:

1. Hospital is defined as the place at which X-rays were received while an inpatient in the hospital and also X-rays received as an outpatient at a hospital clinic.
2. Doctor's office is defined as the office of any doctor who has his own X-ray equipment, or the office of a radiologist. "Doctor's office" also includes clinics run by a group of doctors if the clinic provides X-ray services.
3. Other is defined as places other than hospitals or doctors' offices at which X-ray services are provided. For example, such places include schools, mobile units, Public Health Departments, etc.

Type of service.—X-ray service is classified as diagnosis or treatment. Diagnosis is defined as X-rays for checkup or examination using X-ray or fluoroscopic procedures to determine the presence, absence, or state of a disease or condition. X-rays for treatment are X-rays used in treating a condition which has already been diagnosed.

Body areas.—For each X-ray other than dental, the area of the body to which the X-rays are directed is classified in one of six categories in addition to an "unknown" group, shown in the accompanying chart.



The six categories are defined as follows:

1. Head and neck is defined as that portion of the body, exclusive of skin covering, above the trunk.
2. Chest is defined as that portion of the trunk above the diaphragm including the shoulder.
3. Upper abdomen is defined as that portion of the body between the diaphragm and the transverse colon.
4. Lower abdomen is defined as the remainder of the trunk including the hip.
5. Extremities are defined as the arms exclusive of the shoulders and the legs exclusive of the hip.
6. Skin is defined as the outer covering of the body made up of an epithelial layer, the scarf skin, and the true skin.

### Demographic, Social, and Economic Terms

Age.—The age recorded for each person is the age at last birthday. Age is recorded in single years and grouped in a variety of distributions depending upon the purpose of the table.

Race.—In this report, the population has been subdivided into two groups according to race, "White" and "Nonwhite." "Nonwhite" includes Negro, American Indian, Chinese, Japanese, and so forth. Mexican persons are included with "White" unless definitely known to be Indian or other nonwhite race.

Family income.—Each member of a family is classified according to the total income of the family of which he is a member. Within the household all persons related to each other by blood, marriage, or adoption constitute a family. Unrelated individuals are classified according to their own income.

The income recorded is the total of all income received by members of the family (or by an unrelated individual) in the 12-month period ending with the week of interview. Income from all sources is included, e.g., wages, salaries, rents from property, pensions, help from relatives, and so forth.

Education of family head.—Each member of a family is classified according to the education of the head of the family of which he is a member. Within the household all persons related to each other by blood, marriage, or adoption constitute a family. Unrelated individuals are classified according to their own education.

The categories of educational status show the highest grade of school completed. Only grades completed in regular schools, where persons are given a formal education, are included. A "regular" school is one which advances a person toward an elementary or high school diploma, or a college, university, or professional school degree. Thus, education in vocational, trade, or business schools outside the regular school system is not counted in determining the highest grade of school completed.

### Location of Residence Terms

Urban residence.—The definition of urban areas used in the U. S. National Health Survey is the same as

that used in the 1950 Census. According to this definition, the urban population comprises all persons living in (a) places of 2,500 inhabitants or more incorporated as cities, boroughs, and villages; (b) incorporated towns of 2,500 inhabitants or more except in New England, New York, and Wisconsin, where "Towns" are simply minor civil divisions of counties; (c) the densely settled urban fringe, including both incorporated and unincorporated areas around cities of 50,000 or more; and (d) unincorporated places of 2,500 inhabitants or more outside any urban fringe.

In this report, the urban population has been subdivided into those living "Inside urbanized areas" and those living in "Other urban places."

Inside urbanized areas.—Following the definition used in the 1950 Census, the population in urbanized areas comprises all persons living in (a) cities of 50,000 inhabitants or more in 1940 or according to a special census taken between 1940 and 1950; and (b) the densely settled urban fringe, including both incorporated and unincorporated areas, surrounding these cities.

Other urban places.—The remaining urban population not classified as living "Inside urbanized areas" is classified as living in "Other urban places."

Rural residence.—The remaining population not classified as "Urban" is classified as "Rural." In this report the rural population has been subdivided into "Rural farm" and "Rural nonfarm."

Rural farm.—All rural residents living on farms are classified as "Rural farm." In deciding whether members of a household reside on a farm or ranch, the statement of the household respondent that the house is on a farm or ranch is accepted, with the following exception. A house occupied by persons who pay cash rent for the house and yard only is not counted as a farm or ranch even though the surrounding area is farm land. This special case does not cover: (1) the living quarters of a tenant farmer who rents farm land as well as house and yard; (2) the quarters of a hired hand who receives living quarters on a farm as part of his compensation; or (3) separate living quarters inside a structure which is classified as on a farm. In all these cases the living quarters are counted as on a farm.

Rural nonfarm.—The remaining rural population not classified as "Rural farm" is classified as "Rural nonfarm."

Region and geographic division.—For the purposes of classifying the population by geographic area of residence, the U. S. National Health Survey uses the same grouping of states used by the Bureau of the Census and many other agencies. The major regions and geographic divisions are:

Region and Division	States Included
Northeast	
New England	Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut
Middle Atlantic	New York, New Jersey, Pennsylvania

North Central		East South Central	Kentucky, Tennessee,
East North Central	Michigan, Ohio, Illinois,		Alabama, Mississippi
	Indiana, Wisconsin	West South Central	Arkansas, Louisiana,
West North Central	Minnesota, Iowa, Missouri,		Oklahoma, Texas
	North Dakota, South Dakota,	West	
	Nebraska, Kansas	Mountain	Montana, Idaho, Wyoming,
South			Colorado, New Mexico,
South Atlantic	Delaware, Maryland,	Pacific	Arizona, Utah, Nevada
	District of Columbia,		Washington, Oregon,
	Virginia, West Virginia,		California, Alaska, Hawaii
	North Carolina, South		
	Carolina, Georgia, Florida		

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# APPENDIX III

## QUESTIONNAIRE

The items below show the exact content and wording of the basic questionnaire used in the nationwide household survey of the U. S. National Health Survey. The actual questionnaire is designed for a household as a unit and includes additional spaces for reports no more than one person, condition, accident or hospitalization. Such repetitive spaces are omitted in this illustration.

**CONFIDENTIAL** - The National Health Survey is authorized by Public Law 652 of the 84th Congress (70 Stat 489; 42 U.S.C. 305). All information which would permit identification of the individual will be held strictly confidential, will be used only by persons engaged in and for the purposes of the survey, and will not be disclosed or released to others for any other purposes (22 FR 1687).

FORM NMS-4  
(4-4-801)

U.S. DEPARTMENT OF COMMERCE  
BUREAU OF THE CENSUS  
ACTING AS COLLECTING AGENT FOR THE  
U.S. PUBLIC HEALTH SERVICE

**NATIONAL HEALTH SURVEY**

1. Questionnaire of \_\_\_\_\_  
Questionnaires

2. (a) Address or description of location \_\_\_\_\_  
(b) Mailing address if not shown in (a) \_\_\_\_\_

3. Ident. Code \_\_\_\_\_

3a. Reg. office Code \_\_\_\_\_

4. Sub-sample weight \_\_\_\_\_

5. Sample \_\_\_\_\_

6. PSU Number \_\_\_\_\_

7. Segment No. \_\_\_\_\_

8. Serial No. \_\_\_\_\_

(c) Type of living quarters: ☐ Housing unit ☐ Other \_\_\_\_\_

(d) Name of Special Dwelling Place \_\_\_\_\_ Code \_\_\_\_\_

9. Is this house on a farm or ranch? ..... ☐ Yes ☐ No

10. Do you own or rent this place?  
☐ Own ☐ Rent ☐ Rent free

If "Own" or "rent free" in question 10, ask:  
(a) Does this place have 10 or more acres? ☐ Yes ☐ No  
(b) "rent" in question 10, ask:  
(c) Does the place you rent have 10 or more acres? ☐ Yes ☐ No

(c) During the past 12 months did sales of crops, livestock, and other farm products from the place amount to \$50 or more? ☐ Yes ☐ No

(d) During the past 12 months did sales of crops, livestock, and other farm products from the place amount to \$250 or more? ☐ Yes ☐ No

12. Are there any other living quarters, occupied or vacant, in this building (apartment)? ..... ☐ Yes ☐ No

13. Does anyone else living in this building use YOUR ENTRANCE to get to his living quarters? ..... ☐ Yes ☐ No

Ask at all units except apartment houses:  
14. Is there any other building on this property for people to live in - either occupied or vacant? ..... ☐ Yes ☐ No

15. What is the telephone number here? \_\_\_\_\_ ☐ No phone

16. In case I've overlooked anything, what is the best time to call? \_\_\_\_\_

**INSTRUCTIONS FOR Q. 12, 13 AND 14**  
If "Yes," to questions 12, 13 or 14 apply definition of a housing unit to determine whether one or more additional questionnaires should be filled and whether the listing is to be corrected.

**17. RECORD OF CALLS AT HOUSEHOLDS**

Item	1	Com.	2	Com.	3	Com.	4	Com.	5	Com.
Entire household	Date _____									
Call checks for individual respondents	Col. No. _____									

**18. REASON FOR NON-INTERVIEW**

TYPE	A	B	C	Z
Reason:	<input type="checkbox"/> Refusal (Fill item 19) <input type="checkbox"/> No one at home - repeated calls <input type="checkbox"/> Temporarily absent <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Vacant - non-seasonal <input type="checkbox"/> Vacant - seasonal <input type="checkbox"/> Usual residence elsewhere <input type="checkbox"/> Armed Forces <input type="checkbox"/> Other (Specify) _____	<input type="checkbox"/> Demolished <input type="checkbox"/> In sample by mistake <input type="checkbox"/> Eliminated in sub-sample <input type="checkbox"/> Other (Specify) _____	Interview not obtained for: Cols. _____ because: _____

19. Reason for refusal \_\_\_\_\_

**20. TYPE A FOLLOW-UP PROCEDURE**

If final call results in a Type A non-interview (except Refusals) take the following steps:

- Contact neighbors (caretakers, etc.) until you find someone who knows the family.
- Find out the number of people in the household, their names and approximate ages; if names of all members not known, ascertain relationships. Record this information in the regular spaces inside the questionnaire.
- Find out if anyone in the housing unit is now in a hospital as a patient; if so, which person it is. This is done by asking the following question:

4. Is anyone in the household now in the hospital? ☐ Yes ☐ No ☐ Don't know ☐ No contact made

(a) If "Yes,"--Who? (Enter name) \_\_\_\_\_ (Col. No.) \_\_\_\_\_

1. (a) What is the name of the head of this household? (Enter name in first column)

(b) What are the names of all other persons who live here? (List all persons who usually live here, and all persons staying here who have no usual place of residence elsewhere. List these persons in the prescribed order.)

(c) Do any (other) lodgers or roomers live here? ☐ No ☐ Yes (List) \_\_\_\_\_

(d) Is there anyone else who lives here who is now temporarily in a hospital? ☐ No ☐ Yes (List) \_\_\_\_\_

(e) Away on business? ☐ No ☐ Yes (List) \_\_\_\_\_

(f) On a visit? ☐ No ☐ Yes (List) \_\_\_\_\_

(g) Is there anyone else staying here now? ☐ No ☐ Yes (List) \_\_\_\_\_

(h) Do any of the people in this household have a home elsewhere?  
☐ No (leave on questionnaire) ☐ Yes (apply household membership rules; if not a member, delete)

2. How are you related to the head of the household? (Enter relationship to head, for example: head, wife, daughter, grandson, mother-in-law, partner, lodger, lodger's wife, etc.)

Relationship	(1) Last name	(2) Last name
Head	_____	_____
First name and initial	_____	_____
Relationship	_____	_____



3. How old were you on your last birthday?	Age _____ <input type="checkbox"/> Under 1 year	Age _____ <input type="checkbox"/> Under 1 year
4. Race (Check one box for each person)	<input type="checkbox"/> White <input type="checkbox"/> Negro <input type="checkbox"/> Other	<input type="checkbox"/> White <input type="checkbox"/> Negro <input type="checkbox"/> Other
5. Sex (Check one box for each person)	<input type="checkbox"/> Male <input type="checkbox"/> Female	<input type="checkbox"/> Male <input type="checkbox"/> Female
If 17 years old or over, ask: 6. Are you now married, widowed, divorced, separated or never married? (Check one box for each person)	<input type="checkbox"/> Under 17 years <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Widowed <input type="checkbox"/> Separated <input type="checkbox"/> Never married	<input type="checkbox"/> Under 17 years <input type="checkbox"/> Married <input type="checkbox"/> Divorced <input type="checkbox"/> Widowed <input type="checkbox"/> Separated <input type="checkbox"/> Never married
If 17 years old or over, ask: 7. (a) What is the highest grade you attended in school? (Circle highest grade attended or check "None")  (b) Did you finish the -- grade (year)?	<input type="checkbox"/> Under 17 years Elem: 1 2 3 4 5 6 7 8 High: 1 2 3 4 College: 1 2 3 4 5+ <input type="checkbox"/> None	<input type="checkbox"/> Under 17 years Elem: 1 2 3 4 5 6 7 8 High: 1 2 3 4 College: 1 2 3 4 5+ <input type="checkbox"/> None
8. (a) Did you ever serve in the Armed Forces of the United States? If "Yes," ask: (b) Are you now in the Armed Forces, not counting the reserves? (If "Yes," delete this person from questionnaire)  (c) Was any of your service during a war or was it peace-time only? If "War," ask: (d) During which war did you serve? If "Peace-time" only, ask: (e) Was any of your service between June 27, 1950 and January 31, 1955?	<input type="checkbox"/> Fem. or und. 17 yrs. <input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> War <input type="checkbox"/> Peace-time only WW II <input type="checkbox"/> Korea <input type="checkbox"/> Other <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Fem. or und. 17 yrs. <input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> War <input type="checkbox"/> Peace-time only WW II <input type="checkbox"/> Korea <input type="checkbox"/> Other <input type="checkbox"/> Yes <input type="checkbox"/> No
If 17 years old or over, ask: 9. (a) What were you doing most of the past 12 months -- (For males): working, or doing something else? (For females): working, keeping house, or doing something else? If "Something else" checked, and person is 45 years old or over, ask: (b) Are you retired?	<input type="checkbox"/> Under 17 years <input type="checkbox"/> Working <input type="checkbox"/> Keeping house <input type="checkbox"/> Something else <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Under 17 years <input type="checkbox"/> Working <input type="checkbox"/> Keeping house <input type="checkbox"/> Something else <input type="checkbox"/> Yes <input type="checkbox"/> No
If "Working," in q. 9(a), ask: 10. (a) Were you working last week or the week before? If "Keeping house" or "Something else" in q. 9(a), ask: (b) Did you work at a job or business at any time last week or the week before? If "No," in q. 10(a) or 10(b), ask: (c) Even though you did not work last week or the week before, do you have a job or business?	<input type="checkbox"/> Under 17 years <input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Under 17 years <input type="checkbox"/> Yes <input type="checkbox"/> No  <input type="checkbox"/> Yes <input type="checkbox"/> No
NOTE: Determine which adults are at home and record this information. Beginning with question 11 you are to interview for himself or herself, each adult person who is at home.	<input type="checkbox"/> Under 17 years <input type="checkbox"/> At home <input type="checkbox"/> Not at home	<input type="checkbox"/> Under 17 years <input type="checkbox"/> At home <input type="checkbox"/> Not at home
11. Were you sick at any time LAST WEEK OR THE WEEK BEFORE? (That is, the 2-week period which ended last Sunday)? (a) What was the matter? (b) Anything else?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
12. Last week or the week before did you take any medicine or treatment for any condition (besides... which you told me about)? (a) For what conditions? (b) Anything else?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
13. Last week or the week before did you have any accidents or injuries? (a) What were they? (b) Anything else?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
14. Did you ever have on (any other) accident or injury that was still bothering you last week or the week before? (a) In what way did it bother you? (b) Anything else?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
15. AT THE PRESENT TIME do you have any ailments or conditions that have lasted for a long time? (If "No.") Even though they don't bother you all the time? (a) What are they? (b) Anything else?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
16. Has anyone in the family - you, your --, etc. - had any of these conditions DURING THE PAST 12 MONTHS? (Read Card A, condition by condition; record any conditions mentioned in the column for the person)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
17. Does anyone in the family have any of these conditions? (Read Card B, condition by condition; record any conditions mentioned in the column for the person)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
R For persons 17 years old or over, show who responded for (or was present during the asking of) questions 11-17. If person responded for self, show whether entirely or partly. For persons under 17 show who responded for them.	<input type="checkbox"/> Responded for self-entirely <input type="checkbox"/> Responded for self-partly Col. No. _____ was responder	<input type="checkbox"/> Responded for self-entirely <input type="checkbox"/> Responded for self-partly Col. No. _____ was responder
18. (a) Has anyone in the family been in a hospital DURING THE PAST 12 MONTHS? If "Yes," (b) Now many different times were you in the hospital overnight or longer?	<input type="checkbox"/> Yes <input type="checkbox"/> No ____ No. of times	<input type="checkbox"/> Yes <input type="checkbox"/> No ____ No. of times
19. (a) During the past 12 months has anyone in the family been a patient in a nursing home or sanitarium? If "Yes," (b) How many times were you in a nursing home or sanitarium?	<input type="checkbox"/> Yes <input type="checkbox"/> No ____ No. of times	<input type="checkbox"/> Yes <input type="checkbox"/> No ____ No. of times
20. If baby under one year listed as a household member, ask: (a) Was --- baby born in a hospital or at home? If "hospital" in q. 20(a) and 1 or more in q. 18(b), ask: (b) Was this hospitalization included in the number you just gave me?	<input type="checkbox"/> Hospital <input type="checkbox"/> Home <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Hospital <input type="checkbox"/> Home <input type="checkbox"/> Yes <input type="checkbox"/> No

Table I - ILLNESSES, IMPAIRMENTS AND INJURIES												
Line number	Col. No. of person	Question number	Did you EVER talk to a doctor about ...?	Ask for all illnesses and physical effects of old injuries: (a) If doctor talked to: What did the doctor say it was? ... did he give it a medical name? (b) If doctor not talked to: Record original entry and ask (d-2)-(d-5) as required.  Ask for all injuries during past 2 weeks: What part of the body was hurt? What kind of injury was it? Anything else? (Also, fill Table A for all injuries)	What was the cause of ...? (This column is to be asked if entry in Col. (d-1) is so  Impairment or a Symptom or  If entry in Col. (d-1) is from q. 14 or q. 17) (If "Cause" is so injury, also fill Table A)	If eye trouble of any kind and 6 years old or over, ask:  Can you see well enough to read ordinary newspaper print with glasses?	What kind of ... is it? Ask only for: Any entry in Col. (d-1) or (d-2) that includes the words:  Asthma "condition" Cysts "disease" Growths "trouble" Tumor For so allergy or stroke ask:  How does the ... affect you?	What part of the body is affected? Ask only for: Impairments; injuries; and for:  Abscesses, boils, infections, inflammation, sores, ulcers Aches, pains, soreness, weakness Bleeding or blood clots Cancer, tumor, cysts or growths Neuralgia or neuritis Virus Show detail for: Ear or eye - (one or both) Head - (Skull, scalp, face) Back - (Upper, middle, lower) Arm - (Shoulder, upper, elbow, lower, wrist, hand; one or both) Leg - (Hip, upper, knee, lower, ankle, foot; one or both)	LAST WEEK OR THE WEEK BEFORE did ... cause you to cut down on your usual activities for as much as a day?	How many days, including the Saturdays and Sundays?	How many of these days were you in bed all or most of the day?	If 6-16 years old ask:  How many days did ... keep you from school last week or the week before?
(a)	(b)	(c)	(d-1)	(d-2)	(d-3)	(d-4)	(d-5)	(e)	(f)	(g)	(h)	(i)
1		<input type="checkbox"/> Yes <input type="checkbox"/> No				<input type="checkbox"/> Yes <input type="checkbox"/> No					Days or None	Days or None

Table II - HOSPITALIZATION DURING PAST 12 MONTHS										
Line number	Col. No. of person	Question No.	When did you enter the hospital? (Month, year)	How many nights were you in the hospital?	To Interviewer				What did they say at the hospital the condition was -- did they give it a medical name? (If "they" didn't say, ask:  What did the last doctor you talked to say it was? (Show same detail as in col. (d-1)-(d-5) of T.I.) (If condition from accident or injury, also fill Table A)	Were any operations performed on you during this stay at the hospital? If "Yes," (a) What was the name of the operation? (b) Any other operations?
					How many of these nights were in the past 12 months?	Will you need to ask col. (f) and (g)?	How many of these nights were last week or the week before?	Was this person still in the hospital on last Sunday night?		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)		
1		Mo: _____ Yr: _____	Nights _____	<input type="checkbox"/> All or <input type="checkbox"/> Nights	<input type="checkbox"/> Yes <input type="checkbox"/> No	Nights _____ Noon _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
2		Mo: _____ Yr: _____	Nights _____	<input type="checkbox"/> All or <input type="checkbox"/> Nights	<input type="checkbox"/> Yes <input type="checkbox"/> No	Nights _____ Noon _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		
3		Mo: _____ Yr: _____	Nights _____	<input type="checkbox"/> All or <input type="checkbox"/> Nights	<input type="checkbox"/> Yes <input type="checkbox"/> No	Nights _____ Noon _____	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No		

X-RAY QUESTIONS			
21. (a) We are interested in all kinds of X-rays. Did you have your teeth X-rayed during the past 3 months -- (that is, from -- through last Sunday)? If "Yes," (b) How many times?	<input type="checkbox"/> Yes <input type="checkbox"/> No No. of times _____	<input type="checkbox"/> Yes <input type="checkbox"/> No No. of times _____	
22. During the past 3 months did you have a CHEST X-ray?	<input type="checkbox"/> Yes-Chest <input type="checkbox"/> No	<input type="checkbox"/> Yes-Chest <input type="checkbox"/> No	
23. (a) Did you have any (other) kind of X-ray at all during the past 3 months? If "Yes," (b) What part of the body was X-rayed?	<input type="checkbox"/> Yes Part(s) of body: _____ <input type="checkbox"/> No	<input type="checkbox"/> Yes Part(s) of body: _____ <input type="checkbox"/> No	

Table X - FILL ONE LINE FOR EACH PART OF BODY ENTRY FROM QUESTIONS 22-25								
Line number	Col. No. of person	Question No.	Part of body	How many different times did you have your ... X-rayed during the past 3 months?	Where did you have the X-ray(s)? How many X-rays were at the (hospital, doctor's office, etc.)?	What was this X-ray(s) for -- a check-up or an examination or for treatment?	If "both" is col. (f) ask: How many of these ... X-ray(s) were for treatment?	If "both" or "treatment" is col. (f) ask: For what condition were you being treated?
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	
1					Hospital _____ Dr. office _____ Other _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
2					Hospital _____ Dr. office _____ Other _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
3					Hospital _____ Dr. office _____ Other _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
26. During the past 12 months in which group did the total income of your family fall, that is, your's, your-'.s, etc.? (Show Card H) Include income from all sources, such as wages, salaries, rents from property, pensions, help from relatives, etc.							Group No. _____	Group No. _____

Table I - ILLNESSES, IMPAIRMENTS AND INJURIES

If 17 years old or over and if "Yes", in q. (d)(e), (f)(b) or (f)(c), ask:	Did you first notice... (did it happen) DURING THE PAST 3 MONTHS or before that time?		To Interviewer:	Did you first notice... DURING THE PAST 12 MONTHS or before that time?	How long since you last talked to a doctor about...?	Do you still take any medicine or treatment that the doctor prescribed for...?	About how many days during the past 12 months, has... kept you in bed for all or most of the day?	If 1 or more days in col. (q-1) and col. (e) is checked, ask:	Ask after completing last condition for each person:				If "1", "2", or "3" in col. (r) ask:	
	Check one	Old... start during the past 2 weeks or before that time?							CON-TINUE if col. (k) is checked, or the condition is on Card A or is an impairment; otherwise, STOP	Please look at this card and read each statement. Then tell me which statement fits you best, in terms of health. (Show Cards C, F, as appropriate)	If "1", "2", or "3" in col. (t): Which?	If "Yes" in col. (s):		If "1" or "2" in col. (r) ask:
(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q-1)	(q-2)	(r)	(s)	(t)	(u)	(v)	(w)
How many days did... keep you from work last week or the week before?	Before 3 mos.	During 3 mos.	Old... start during the past 2 weeks or before that time? (If during past 2 weeks, ask): Which week, last week or the week before?	During past 12 months	How long since you last talked to a doctor about...?	Do you still take any medicine or treatment that the doctor prescribed for...?	About how many days during the past 12 months, has... kept you in bed for all or most of the day?	If 1 or more days in col. (q-1) and col. (e) is checked, ask:	Please look at this card and read each statement. Then tell me which statement fits you best, in terms of health. (Show Cards C, F, as appropriate)	If "1", "2", or "3" in col. (t): Which?	If "Yes" in col. (s):	If "1" or "2" in col. (r) ask:	If "1", "2", or "3" in col. (r) ask:	Please look at this card and read each statement. Then tell me which statement fits you best. (Show Card G)
Days or None			<input type="checkbox"/> Last week <input type="checkbox"/> Week before <input type="checkbox"/> Before 2 wks	<input type="checkbox"/> During past 12 months <input type="checkbox"/> Before <input type="checkbox"/> Birth	Mos. Yrs. No Dr.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> No Dr.	Days or Noac		<input type="checkbox"/> Yes <input type="checkbox"/> No			Mos. Yrs.	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Uad. 17	I

Table II - HOSPITALIZATION DURING PAST 12 MONTHS

For completed hospitalizations ("No" in Col. (g)) of persons 6 years old and over who show an operation, a setting of a fracture, or a delivery in Col. (h) or (i):			What is the name and address of the hospital you were in?
How many nights were you in the hospital, before you had your operation (delivery, etc.)?	After you left the hospital, how many days was it before you returned to your usual activities full-time?	If "still unable" in (k), how long has it been since you left the hospital?	(Enter name, city and State; if city not known, enter county)
(j)	(k)	(l)	(m)
No. of nights	No. of days <input type="checkbox"/> Still unable	<input type="checkbox"/> Over 6 months If under 6 months: Days Months	
No. of nights	No. of days <input type="checkbox"/> Still unable	<input type="checkbox"/> Over 6 months If under 6 months: Days Months	
No. of nights	No. of days <input type="checkbox"/> Still unable	<input type="checkbox"/> Over 6 months If under 6 months: Days Months	

X-RAY QUESTIONS

24. (a) During the past 3 months, did anyone in the family have any X-rays for the treatment of a condition? If "Yes," (b) What part of the body was treated? (c) Was this included in the X-ray(s) you told me about before?	<input type="checkbox"/> Yes Part(s) of body:	<input type="checkbox"/> No	<input type="checkbox"/> Yes Part(s) of body:	<input type="checkbox"/> No
25. (a) Did anyone in the family have a fluoroscope during the past 3 months? If "Yes," (b) What part of the body was this for? (c) Was this included in the X-ray(s) you told me about before?	<input type="checkbox"/> Yes Part(s) of body:	<input type="checkbox"/> No	<input type="checkbox"/> Yes Part(s) of body:	<input type="checkbox"/> No
	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Table X - FILL ONE LINE FOR EACH PART OF BODY ENTRY FROM QUESTIONS 22-25

Ask for each person with 2 or more lines in Table X: (Ask after all X-rays have been recorded through cols. (a)-(b) of Table X for a person)				FOOTNOTES	
Were any of these... X-rays you told me about taken at the same time? If "Yes," Which X-rays were these? (i)					
No (Stop)	Yes	Enter information below for X-rays taken at same time:			
		Part(s) of body:	No.	Part(s) of body:	No.
		Part(s) of body:	No.	Part(s) of body:	No.
		Part(s) of body:	No.	Part(s) of body:	No.
Group No.		Group No.		Group No.	

Table A - (Accidents and Injuries)			
Line No. from Table 1  <div style="border: 1px solid black; width: 40px; height: 20px; margin: 5px 0;"></div> Accident happened last week or week before (Go to q. 3) <div style="border: 1px solid black; width: 20px; height: 20px; float: right; margin-top: 10px;"></div>	1. When did the accident happen?  Year: _____ (If 1960 or 1961 also enter the month)  Month: _____	2. At the time of the accident, what part of the body was hurt? What kind of injury was it? Anything else?  <div style="display: flex; justify-content: space-between;"> <div>Part(s) of body</div> <div>Kind of injury(s)</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>_____</div> <div>_____</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>_____</div> <div>_____</div> </div>	
3. (a) Was a car, truck, bus or other motor vehicle involved in the accident in any way? <input type="checkbox"/> Yes <input type="checkbox"/> No (Go to Section B) (b) Was more than one motor vehicle involved? <input type="checkbox"/> Yes (more than one) <input type="checkbox"/> No (c) Was it (either one) moving at the time? <input type="checkbox"/> Yes <input type="checkbox"/> No (Go to Section B)			
4. Were you outside the vehicle, getting in or out of it, a passenger or were you the driver? <div style="display: flex; justify-content: space-between; align-items: flex-start; margin-top: 5px;"> <div style="width: 45%;">             1. <input type="checkbox"/> Outside (Go to Section A q. 5)           </div> <div style="width: 45%;"> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;">               2. <input type="checkbox"/> Getting in or out                3. <input type="checkbox"/> Passenger                4. <input type="checkbox"/> Driver             </div> <div style="width: 5%; text-align: center; font-size: 2em;">}</div> <div style="width: 50%;">               (Go to Section A q. 6)             </div> </div> </div> </div>			
Section A - (Motor Vehicle Accidents)		Section B - (Non-Motor Vehicle Accidents)	
If "Outside" in q. 4, ask: 5. (a) How did the accident happen?  1. <input type="checkbox"/> Accident between motor vehicle and person riding on bicycle, in streetcar, on railroad train, on horse-drawn vehicle 2. <input type="checkbox"/> Accident between motor vehicle and person who was walking, running, or standing 3. <input type="checkbox"/> Other (Specify how the accident happened) _____  (b) What kind(s) of motor vehicle was involved? 1. <input type="checkbox"/> Car    2. <input type="checkbox"/> Taxi    3. <input type="checkbox"/> Bus 4. <input type="checkbox"/> Truck    5. <input type="checkbox"/> Motorcycle    6. <input type="checkbox"/> Other (Specify) _____  _____		7. How did the accident happen? A.1. <input type="checkbox"/> Any injury involving an uncontrolled fire or explosion 2. <input type="checkbox"/> Any injury involving the discharge of a firearm 3. <input type="checkbox"/> Any injury from an accident involving a non-motor vehicle in motion (streetcar, railroad train, airplane, boat, bicycle, horse-drawn vehicle) B.4. <input type="checkbox"/> Any injury caused by machinery (belt or motor driven) while in operation (Specify kind of machinery) _____ 5. <input type="checkbox"/> Any injury caused by edge or point of knife, scissors, nail or other cutting or piercing implement 6. <input type="checkbox"/> Any injury caused by foreign body in eye, windpipe, or other orifices 7. <input type="checkbox"/> Any injury caused by animal or insect 8. <input type="checkbox"/> Any injury caused by poisonous substance swallowed (Specify substance) _____ C.9. <input type="checkbox"/> Fell on stairs or steps or from a height 10. <input type="checkbox"/> All other falls 11. <input type="checkbox"/> Bumped into object or person (covers all collisions between persons including striking, punching, kicking, etc.) 12. <input type="checkbox"/> Struck by moving object (include objects held in own hand or hand of other person, also falling, flying, or thrown objects) 13. <input type="checkbox"/> Handling or stepping on sharp or rough objects such as stones, splinters, broken glass, rope, etc. 14. <input type="checkbox"/> Caught in, pinched or crushed between two moving objects or between a moving and a stationary object 15. <input type="checkbox"/> Came in contact with hot object or substance or open flame 16. <input type="checkbox"/> One-time lifting or other one-time exertion 17. <input type="checkbox"/> Twisting, stumbling, etc. D.18. <input type="checkbox"/> Other (Specify how accident happened) _____ _____ _____ _____ _____	
If "Getting in or out" "Passenger" or "Driver," in q. 4, ask: 6. (a) How did the accident happen? 1. <input type="checkbox"/> Accident between two or more motor vehicles on roadway 2. <input type="checkbox"/> Accident between motor vehicle and some other object on roadway (Specify object) _____ 3. <input type="checkbox"/> Motor vehicle came to sudden stop on roadway 4. <input type="checkbox"/> Motor vehicle ran off roadway 5. <input type="checkbox"/> Other (Specify how the accident happened) _____ _____ <input type="checkbox"/> Acc. on roadway _____ <input type="checkbox"/> Acc. not on roadway (b) What kind of motor vehicle were you in (getting in) (getting out of) when the accident happened? 1. <input type="checkbox"/> Car    2. <input type="checkbox"/> Taxi    3. <input type="checkbox"/> Bus 4. <input type="checkbox"/> Truck    5. <input type="checkbox"/> Motorcycle    6. <input type="checkbox"/> Other (Specify) _____ _____			
ASK FOR ALL ACCIDENTS			
8. (a) Where did the accident happen--at home or some other place? 1. <input type="checkbox"/> At home (inside house)    2. <input type="checkbox"/> At home (adjacent premises) <input type="checkbox"/> Some other place If "Some other place," ask: (b) What kind of place was it? 3. <input type="checkbox"/> Street and highway (includes roadway)    6. <input type="checkbox"/> School (includes school premises) 4. <input type="checkbox"/> Farm    7. <input type="checkbox"/> Place of recreation and sports, except at school 5. <input type="checkbox"/> Industrial place (includes premises)    8. <input type="checkbox"/> Other (Specify the place where accident happened) _____ _____			
9. Were you at work at your job or business when the accident happened? 1. <input type="checkbox"/> Yes    2. <input type="checkbox"/> No    3. <input type="checkbox"/> While in Armed Services    4. <input type="checkbox"/> Under 17 at time of accident			
FOOTNOTES AND COMMENTS			



<p><b>Cord A</b></p> <p><b>NATIONAL HEALTH SURVEY</b></p> <p>Check List of Chronic Conditions</p> <ol style="list-style-type: none"> <li>1. Asthma</li> <li>2. Tuberculosis</li> <li>3. Chronic bronchitis</li> <li>4. Repeated attacks of sinus trouble</li> <li>5. Rheumatic fever</li> <li>6. Hardening of the arteries</li> <li>7. High blood pressure</li> <li>8. Heart trouble</li> <li>9. Stroke</li> <li>10. Trouble with varicose veins</li> <li>11. Hemorrhoids or piles</li> <li>12. Hay fever</li> <li>13. Tumor, cyst or growth</li> <li>14. Chronic gallbladder or liver trouble</li> <li>15. Stomach ulcer</li> <li>16. Any other chronic stomach trouble</li> <li>17. Kidney stones or chronic kidney trouble</li> <li>18. Arthritis or rheumatism</li> <li>19. Mental illness</li> <li>20. Diabetes</li> <li>21. Thyroid trouble or goiter</li> <li>22. Any allergy</li> <li>23. Epilepsy</li> <li>24. Chronic nervous trouble</li> <li>25. Cancer</li> <li>26. Chronic skin trouble</li> <li>27. Hernia or rupture</li> <li>28. Prostate trouble</li> </ol>	<p><b>Cord C</b></p> <p><b>NATIONAL HEALTH SURVEY</b></p> <p>For: Workers and other persons except Housewives and Children</p> <ol style="list-style-type: none"> <li>1. Not able to work at all.</li> <li>2. Able to work but limited to amount of work or kind of work.</li> <li>3. Able to work but limited in kind or amount of other activities.</li> <li>4. Not limited in any of these ways.</li> </ol>	<p><b>Cord E</b></p> <p><b>NATIONAL HEALTH SURVEY</b></p> <p>For: Children from 6 through 16 years old</p> <ol style="list-style-type: none"> <li>1. Not able to go to school at all.</li> <li>2. Able to go to school but limited to certain types of schools or to school attendance.</li> <li>3. Able to go to school but limited in other activities.</li> <li>4. Not limited in any of these ways.</li> </ol>	<p><b>Cord G</b></p> <p><b>NATIONAL HEALTH SURVEY</b></p> <ol style="list-style-type: none"> <li>1. Confined to the house all the time, except in emergencies.</li> <li>2. Able to go outside but need the help of another person to get around outside.</li> <li>3. Able to go outside alone but have trouble in getting around freely.</li> <li>4. Not limited in any of these ways.</li> </ol>
<p><b>Cord B</b></p> <p><b>NATIONAL HEALTH SURVEY</b></p> <p>Check List of Selected Impairments</p> <ol style="list-style-type: none"> <li>1. Deafness or serious trouble with hearing</li> <li>2. Serious trouble with seeing, even when wearing glasses</li> <li>3. Cleft palate</li> <li>4. Any speech defect</li> <li>5. Missing fingers, hand, or arm -- toes, foot, or leg</li> <li>6. Palsy</li> <li>7. Paralysis of any kind</li> <li>8. Repeated trouble with back or spine</li> <li>9. Club foot</li> <li>10. Permanent stiffness or any deformity of the foot, leg, fingers, arm or back</li> <li>11. Any condition present since birth</li> </ol>	<p><b>Cord D</b></p> <p><b>NATIONAL HEALTH SURVEY</b></p> <p>For: Housewife</p> <ol style="list-style-type: none"> <li>1. Not able to keep house at all.</li> <li>2. Able to keep house but limited in amount or kind of housework.</li> <li>3. Able to keep house but limited to kind or amount of other activities.</li> <li>4. Not limited in any of these ways.</li> </ol>	<p><b>Cord F</b></p> <p><b>NATIONAL HEALTH SURVEY</b></p> <p>For: Children under 6 years old</p> <ol style="list-style-type: none"> <li>1. Not able to take part at all in ordinary play with other children.</li> <li>2. Able to play with other children but limited to amount or kind of play.</li> <li>4. Not limited in any of these ways.</li> </ol>	<p><b>Cord H</b></p> <p><b>NATIONAL HEALTH SURVEY</b></p> <p>Family income during past 12 months</p> <p>Group 1. Under \$500 (including loss)</p> <p>Group 2. \$500 - \$999</p> <p>Group 3. \$1,000 - \$1,999</p> <p>Group 4. \$2,000 - \$2,999</p> <p>Group 5. \$3,000 - \$3,999</p> <p>Group 6. \$4,000 - \$4,999</p> <p>Group 7. \$5,000 - \$6,999</p> <p>Group 8. \$7,000 - \$9,999</p> <p>Group 9. \$10,000 and over</p>

## APPENDIX IV

### PRETESTING THE X-RAY QUESTIONS

#### Introduction

During the 12-month period from July 1960-June 1961 five new questions and a new table were added to the Health Interview Survey questionnaire to obtain information about the volume of medical and dental X-ray visits made by the civilian, noninstitutional population of the United States. A pilot study was conducted in Hagerstown, Maryland, in October 1959 to test the design of the questions. A second pretest with revised probe questions was conducted in Washington, D. C., and vicinity in January 1960.

Preliminary study by the National Health Survey and the Bureau of the Census indicated the desirability of using a "record-check" type of pretest. A "record-check" pretest, as the name implies, is one in which the actual experience of members of the sample for the reference period has been obtained from records of the specific events. The responses obtained during the household interview are then compared with the data from records and degree of match noted. In the case of the Hagerstown and Washington pilot studies, the objectives were to test the effectiveness of the design of the probe questions, and especially, to determine the optimum period of memory recall of X-ray experience.

#### HAGERSTOWN, MARYLAND SAMPLE SURVEY, OCTOBER 1959

##### Planning and Conducting the Survey

Because of the nature of the X-ray questions proposed for addition to the regular NHS questionnaire during July 1960-June 1961, it was decided to pretest the questions among a sample of households in which at least one member had had X-ray experience during the previous 12 months. A sample of names and addresses was obtained from the records of certain X-ray facilities in Hagerstown. These facilities included dentists, physicians, the X-ray department of the hospital, the X-ray unit of a private clinic, and the chest X-ray center of the city health department. At the time the names and addresses were recorded, the date, place of visit, type of X-ray, and part of body x-rayed were also recorded.

Interviewers were not informed that X-ray records were available, nor were they given the names of persons at the addresses where interviews were to be conducted. This was done partly to safeguard the confidentiality of the information, but primarily to avoid biasing the interviewers through a foreknowledge of X-ray experience of persons in the household.

In order to simulate the length and complexity of the customary interviewing situation, the NHS questionnaire in use between July 1959 and June 1960 was used in the pretest. The X-ray questions and table (shown in table I) replaced the health insurance probe questions, hospital insurance coverage questions in table II, hospitalization, and table A, accidents. Questionnaires and interviewer instructions were prepared, and selection and training of six regularly employed NHS interviewers was undertaken.

The survey was conducted during the week of October 26, 1959. Observers from the National Health Survey and the Bureau of the Census accompanied each of the interviewers to find out the reactions of both interviewer and respondent to the new questions and answers to these questions.

A total of 92 completed household interviews were obtained from among the X-ray record cases; 26 dental X-ray cases and 66 medical X-ray cases. Table A summarizes the findings of the study with respect to degree of "match" with the record source data.

The definition of match used in this pretest was more rigorous than the categories of classification used later for the processing of the regular NHS questionnaire for the period July 1960-June 1961. The part of the body x-rayed was considered a match only if the same specific part mentioned in the interview was noted in the record. For example, an interview report of an X-ray of the back was not considered a match if the record source specified a chest X-ray. During the regular survey, six body areas were used to classify part of the body and a glossary of terms was prepared of acceptable terms for each of the six areas. Therefore, it is reasonable to expect that the percentage of "matched" cases, shown above, would have been higher using less rigid rules.

#### WASHINGTON, D. C. SAMPLE SURVEY, JANUARY 1960

##### Planning and Conducting the Survey

On the basis of the results of the Hagerstown study, the format of the X-ray probe questions was redesigned, and planning began for a further pretest in a sample population in Washington, D. C., and immediate vicinity, in January 1960. Changes in the probe questions were in the direction of improving match percentages for medical X-ray visits which were quite low in the Hagerstown study. For example, treatment X-rays were relatively poorly reported; to improve this percentage a probe was specifically directed toward treat-



Table A. Summary of results of Hagerstown pretest

Item	Medical		Dental	
	Number of persons	Percent of visits matched <sup>1</sup>	Number of persons	Percent of visits matched <sup>1</sup>
12-month recall-----	66	67	26	87
6-month recall-----	33	70	---	---
3-month recall-----	15	73	---	---
Self-respondent-----	42	76	14	100
Proxy-respondent-----	24	50	12	79
X-ray film procedures-----	50	56	...	...
Fluoroscopy-----	10	40	...	...
Treatment X-rays-----	6	33	...	...

<sup>1</sup>"Match" was defined as a report in the interview of the same part of the body and type of procedure as that shown in the record. The date reported by the respondent must have been within the limits of the recall period to be accepted as a "Match."

ment in a question on a single part of the body (see tables 1 and 11). Three columns were added to the hospitalization table to inquire about X-rays during each period of hospitalization recorded.

The memory recall period was reduced from 12 to 3 months. In addition, a number of cases were included in the sample who had X-rays within two weeks of the interview week, in order to test whether a two-week-recall period would produce better results than a three-month period.

Cases were selected to include a group of hospital inpatients and outpatients, radiologist's patients, and mobile X-ray unit cases. Interviewing was conducted from January 18-23, and 169 completed interviews were obtained (see below).

### Results of the Survey

The percentages of matched cases were higher in this study, both for the two-week-recall and three-month-recall periods. The criteria for a match were essentially the same as for the Hagerstown pretest; that is, a report of an X-ray of the same part of the body but with the added feature of a report for the same month of visit as that shown on the record. Table B shows results of this study.

For some types of X-ray visits it appears that a two-week-reference period would be better than a longer period, as judged from the match rates. However, match rates alone fail to reveal two other factors that must be considered in conducting a population survey for the purpose of producing estimates of the aggregate number of visits. First, some persons who have had X-rays in the past two weeks may be in a hospital at the time an interviewer calls at the household. This results in a higher than normal noninterview rate, with consequent loss of data. Second, the use of a two-week recall period appreciably increases the relative sampling error as compared with a three-month-recall

period when producing annual estimates of the aggregate number of visits. The problems of noninterview, together with the decreased volume of data ruled against the use of a two-week reference period for this topic.

It will be noted that although the over-all level of reporting of medical X-ray visits for three-month recall was at about the same level in Hagerstown and in Washington (73 percent), the Washington study was heavily weighted with proxy respondents. For self responses and also for proxy responses the Washington test produced better match rates. If one applies the Washington pretest match rates to the self-proxy respondent ratio in the National Health Interview Survey, this yields about a 77 percent expected rate of match on the basis of the matching criteria used in the pretest.

There is evidence that a match rate of 73 percent on the pretest (or 77 percent adjusted for respondent differences) is not an indication of the extent of reporting of the gross volume of X-ray visits, but rather indicates the precision with which respondents can reproduce the circumstances of visits to a degree that they can be unmistakably identified with visits in a record source. There were, for the 169 persons in the pretest, 406 visits in the medical record. For these same persons 438 visits were reported by interview but only 73 percent "matched" the record. In terms of gross volume of visits the record and the interview are not highly discrepant. It is quite possible that some persons in the pretest had X-ray visits at locations outside of the sources of the records, and reported such visits on interview. It is also possible that some respondents may have reported on interview X-ray visits which were prior to the three-month-reference period. Whatever the reason, the number of visits reported equaled or exceeded the number in the record for all classes of patients except the "treatment" group. For this group there were 169 X-ray visits in the records, 139 reported on interview, and 81 (48 percent) matched by the criteria employed.

Table B. Summary of results of Washington pretest

Type of case	Number of persons in 3-month period	Percent of visits matched	
		2-week recall	3-month recall
Total-----	169	69	73
Hospital-----	115	70	70
Outpatient-----	23	75	69
Treatment-----	10	100	48
Inpatient-----	82	67	72
Radiologist-----	40	67	80
Mobile X-ray unit-----	14	60	79
Self respondent-----	79	84	80
Hospital-----	49	90	78
Outpatient-----	14	100	82
Treatment-----	6	100	60
Inpatient-----	29	86	79
Radiologist-----	22	50	84
Mobile X-ray unit-----	8	100	88
Proxy respondent-----	90	66	70
Hospital-----	66	65	70
Outpatient-----	9	33	57
Treatment-----	4	100	32
Inpatient-----	53	65	75
Radiologist-----	18	100	74
Mobile X-ray unit-----	6	33	67

Although all of the factors involved in underreporting, overreporting, and mismatching could not be identified from the pretests, it was concluded that the precision of reporting was not less than shown by the percentages in table B and that the gross volume of reporting was reasonably complete for all classes of patients except those receiving treatment, for whom the volume of visits might be underreported by about 20 percent.

On the basis of these results, the X-ray probe questions and table X, shown in this Appendix IV, were included in the questionnaire used nationally during July 1960-June 1961. Minor changes were made in the form of the questions and table. The three-month-recall period was used, but the additional columns in the hospitalization table were omitted.



Table I. X-ray Questions: Hagerstown Pretest

	Col. (1)	Col. (2)
23(a) During the past 12 months did anyone in the family, you, your ..., etc., have his teeth X-rayed? <u>If yes:</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
(b) How many times?	No. of times _____	No. of times _____
24(a) We are also interested in other X-ray and fluoroscope examinations or treatment. During the past 12 months did anyone in the family have an X-ray or fluoroscope of the chest or back? <u>If yes:</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
(b) What was X-rayed?		
25(a) During that time did anyone have an X-ray of any part of the arms, legs, hands or feet? <u>If yes:</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
(b) What was X-rayed?		
26(a) During that time did anyone in the family have an X-ray or fluoroscope of the head, hip, an internal organ or any (other) part of the body? <u>If yes:</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
(b) What was X-rayed? Anything else?		
27(a) People sometimes forget X-rays taken at certain places. (Not counting those you've already told me about) did anyone in the family have an X-ray at a school, a place of employment, or at a mobile X-ray unit during the past 12 months? <u>If yes:</u>	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
(b) What was X-rayed?		

Table X: Fill one line for each part of body entry from Questions 24-27

Line No.	Col. No. of Person	Part of body	About your X-rays of the ..., How many times were you X-rayed for this during the past 12 months?	How many of these-- X-rays were at the X-ray department of a hospital?	In what month(s) were the X-rays taken?	X-rays are sometimes for check-up or examination and sometimes for cure or treatment of a condition. What were these X-rays for?	If more than "1" in col. (c) and "both" in col. (f) ask: How many of these-- were for treatment?	If "both" or "treatment" in col. (f) ask: For what condition were you being treated?
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1					Month(s) _____ _____	<input type="checkbox"/> Check-up/ examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		

Table II. X-ray Questions: Washington Pretest

	Col. (1)	Col. (2)
23(a) We are interested in all kinds of X-rays- Did you have your teeth X-rayed during the past 3 months--(that is, from-- through last Sunday)? If "Yes" (b) How many times?	<input type="checkbox"/> Yes <input type="checkbox"/> No  No. of times _____	<input type="checkbox"/> Yes <input type="checkbox"/> No  No. of times _____
24. During the past 3 months did you have a CHEST X-ray?	<input type="checkbox"/> Yes-Chest <input type="checkbox"/> No	<input type="checkbox"/> Yes-Chest <input type="checkbox"/> No
25(a) Did you have any (other) kind of X-ray at all during the past 3 months? If "Yes" (b) What part of the body was X-rayed? (c) Any other part of the body?	<input type="checkbox"/> Yes <input type="checkbox"/> No Part(s) of body: _____	<input type="checkbox"/> Yes <input type="checkbox"/> No Part(s) of body: _____
26(a) During the past 3 months, did anyone in the family have any X-rays for the treatment of a condition? If "Yes" (b) What part of the body was treated? (c) Was this included in the X-ray(s) you told me about before?	<input type="checkbox"/> Yes <input type="checkbox"/> No Part(s) of body: _____  <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No Part(s) of body: _____  <input type="checkbox"/> Yes <input type="checkbox"/> No
27(a) Did anyone in the family have a fluoroscope during the past 3 months? If "Yes" (b) What part of the body was this for? (c) Was this included in the X-ray(s) you told me about before?	<input type="checkbox"/> Yes <input type="checkbox"/> No Part(s) of body: _____  <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No Part(s) of body: _____  <input type="checkbox"/> Yes <input type="checkbox"/> No

Table X - FILL ONE LINE FOR EACH PART OF BODY ENTRY FROM QUESTIONS 24-27

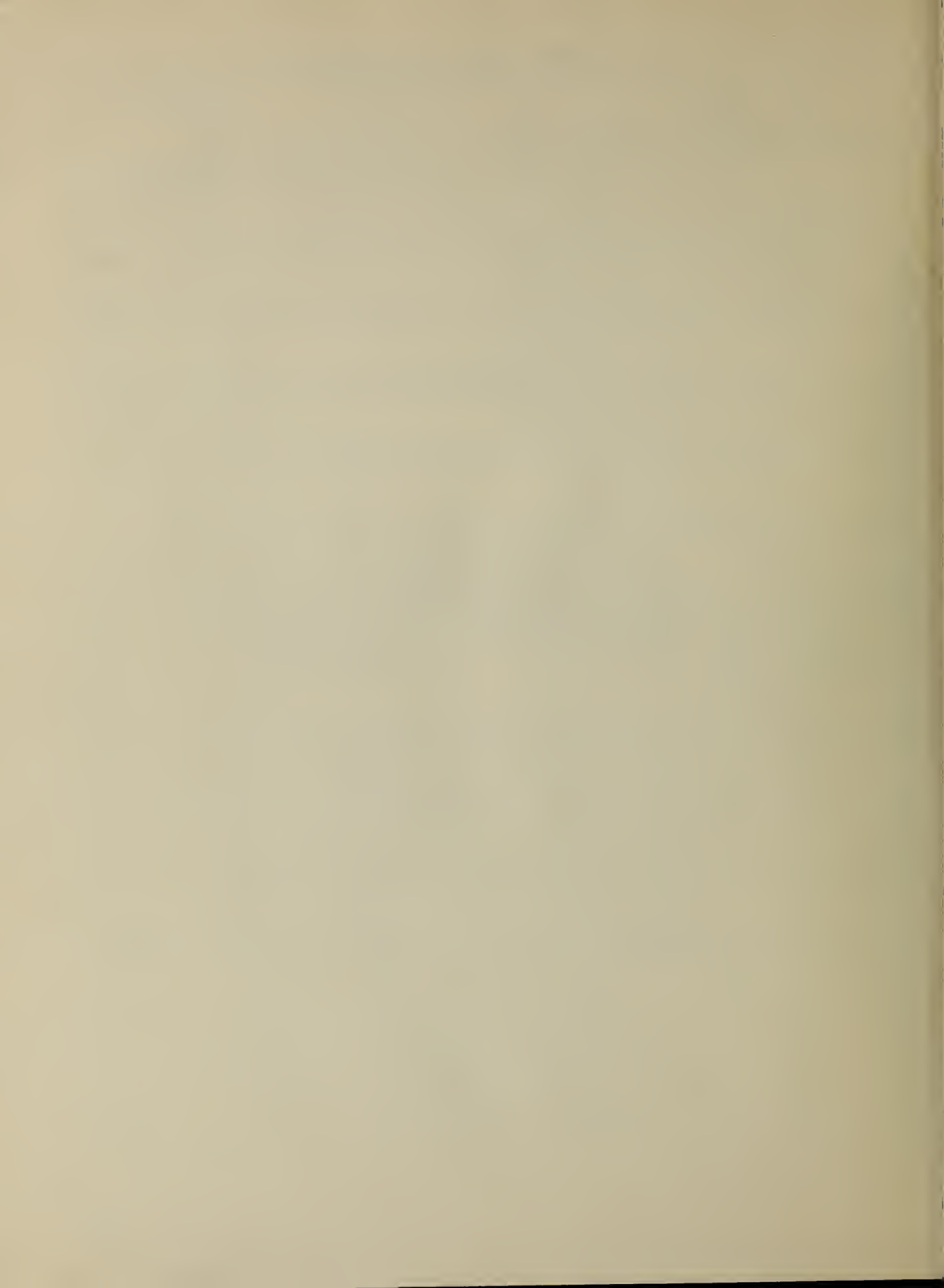
Line No.	Col. No. of person	Part of body	How many times did you have your... X-rayed during the past 3 months?	Did you have the X-ray(s) at a hospital or at a doctor's office?	In what month(s) was the X-ray(s) taken?	What was this X-ray(s) for--a check-up or an examination or for treatment?	If more than "1" in col. (c) and "both" in col. (f) ask: How many of these... X-ray(s) were for treatment?	If "both" or "treatment" in col. (f) ask: For what condition were you being treated?
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1				<input type="checkbox"/> Hospital <input type="checkbox"/> Dr. office <input type="checkbox"/> Other	Month(s) _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
2				<input type="checkbox"/> Hospital <input type="checkbox"/> Dr. office <input type="checkbox"/> Other	Month(s) _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
3				<input type="checkbox"/> Hospital <input type="checkbox"/> Dr. office <input type="checkbox"/> Other	Month(s) _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
4				<input type="checkbox"/> Hospital <input type="checkbox"/> Dr. office <input type="checkbox"/> Other	Month(s) _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
5				<input type="checkbox"/> Hospital <input type="checkbox"/> Dr. office <input type="checkbox"/> Other	Month(s) _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
6				<input type="checkbox"/> Hospital <input type="checkbox"/> Dr. office <input type="checkbox"/> Other	Month(s) _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
7				<input type="checkbox"/> Hospital <input type="checkbox"/> Dr. office <input type="checkbox"/> Other	Month(s) _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		
8				<input type="checkbox"/> Hospital <input type="checkbox"/> Dr. office <input type="checkbox"/> Other	Month(s) _____	<input type="checkbox"/> Check-up/examination <input type="checkbox"/> Treatment <input type="checkbox"/> Both		

Table II - HOSPITALIZATION DURING PAST 12 MONTHS

Line number	Col. No. of person	Question No.	When did you enter the hospital? (Month, year)	How many days were you in the hospital, not counting the day you left?	To Interviewer				What did they say at the hospital the condition was; did they give it a medical name? (If "they" didn't say, ask):  What did the last doctor you talked to say it was?  (Show same detail as in cols. (d-1)-(d-5) of T.I.) (If condition from accident or injury, also fill Table A)	Were any operations performed on you during this stay at the hospital?  If "Yes," (a) What was the name of the operation?  (b) Any other operations?
					How many of these --days were in the past 12 months?	Will you need to ask cols. (f) and (g)?	How many of these --days were last week or the week before?	Was this person still in the hospital on last Sunday night?		
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
1			Mo: _____ Yr: _____	Days	<input type="checkbox"/> All or <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Days <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes ↓ <input type="checkbox"/> No	
2			Mo: _____ Yr: _____	Days	<input type="checkbox"/> All or <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Days <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes ↓ <input type="checkbox"/> No	
3			Mo: _____ Yr: _____	Days	<input type="checkbox"/> All or <input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	Days <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes ↓ <input type="checkbox"/> No	

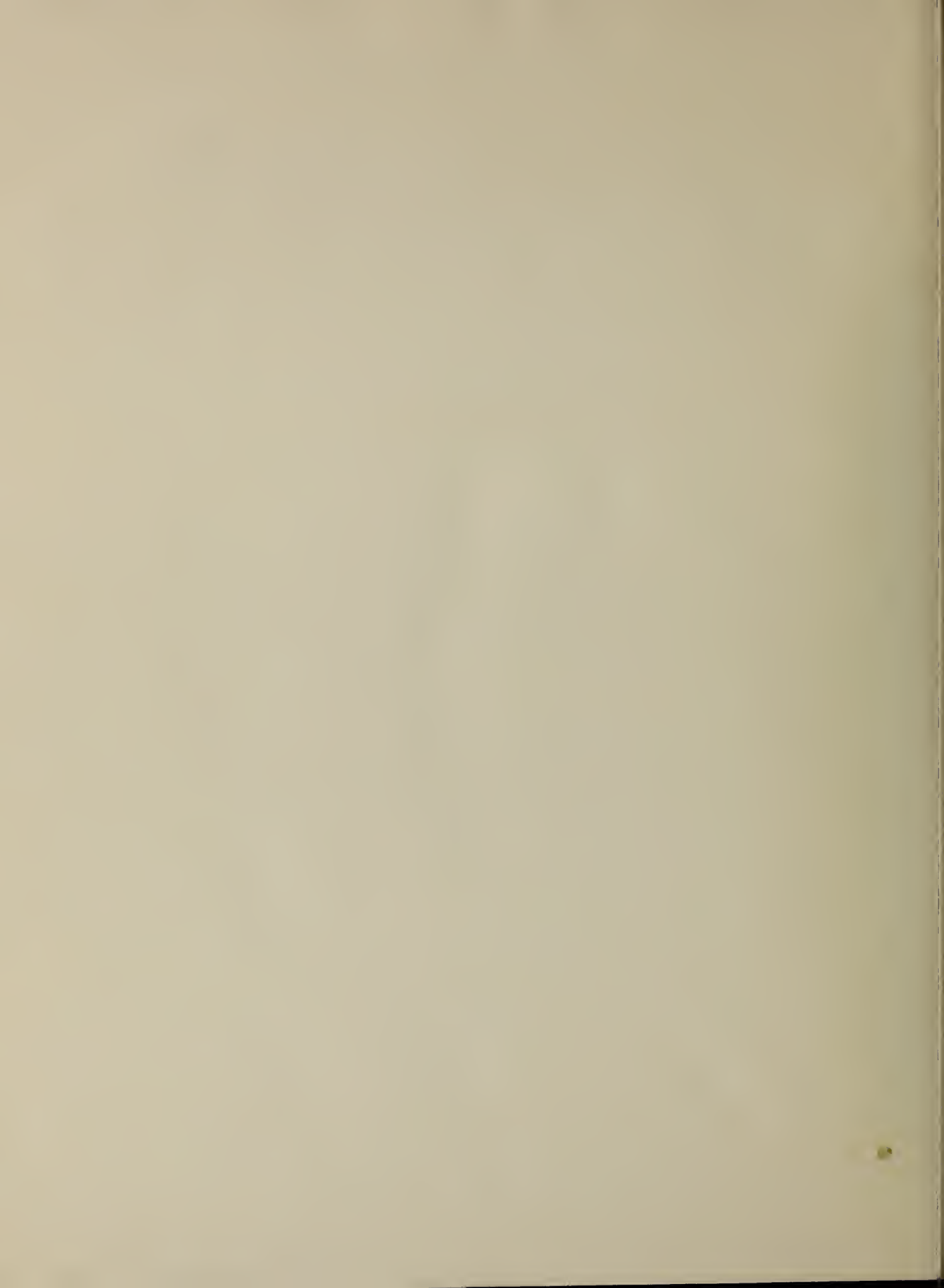
Table II - HOSPITALIZATION DURING PAST 12 MONTHS

What is the name and address of the hospital you were in?  (Enter name, city and State; if city not known, enter County)	For hospital admissions in January, December or November, ask:			Notes:
	Did you get an X-ray or a fluoroscope while you were in the hospital?	If "Yes" in col. (k) ask:  What part of the body was X-rayed?	Was this included in the X-ray(s) you told me about before?	
(j)	(k)	(l)	(m)	
	<input type="checkbox"/> Yes → <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No (Table X)	
	<input type="checkbox"/> Yes → <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No (Table X)	
	<input type="checkbox"/> Yes → <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No (Table X)	









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